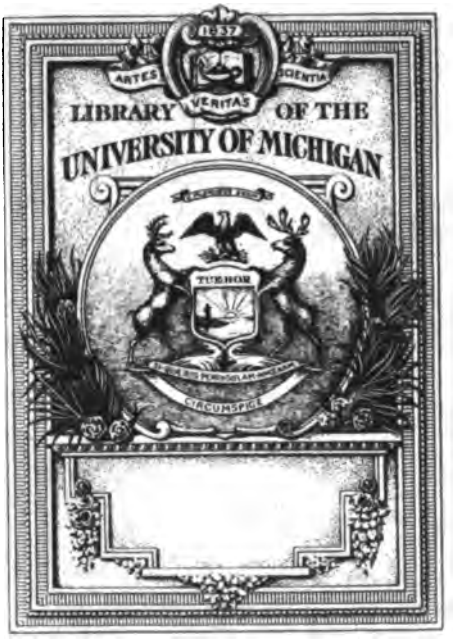

SIXTEENTH ANNUAL REPORT

OF THE

# DAIRY AND FOOD COMMISSIONER

OF THE

## STATE OF MICHIGAN

FOR THE

YEAR ENDING JUNE 30, 1909.

BY AUTHORITY

LANSING, MICHIGAN
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1909

## MICHIGAN DAIRY AND FOOD DEPARTMENT.

| | |
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| FLOYD W. ROBISON, B. S. | State Analyst |
| L. H. VAN WORMER, B. S. | Assistant Chemist |
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# LETTER OF TRANSMITTAL.

OFFICE OF DAIRY AND FOOD COMMISSIONER,
LANSING, MICHIGAN, JUNE 30, 1909.

*To His Excellency, Fred M. Warner, Governor of Michigan:*

Sir:—I have the honor to submit my annual report as Dairy and Food Commissioner for the year ending June 30, 1909. The total amount made available by legislative enactment for the maintenance of this department for the period above mentioned, was $45,030.00. This amount was made up from the following sources: Annual appropriation $35,000.00; fees collected for registration of creameries, cheese factories, skimming stations and milk depots, $3,155.00; license fees collected from concentrated commercial feeding stuffs, $3,000.00; fees collected for milk dealers' licenses, $1,954.00; fees collected for ice cream manufacturers' licenses, $1,900.00; test tubes sold, $21.00.

The above statement shows an increase of $1,801.85 over the amount available for the maintenance of the department during the previous year. This is practically the same amount represented by the item "Fees collected for ice cream manufacturers' licenses." This amount was expended in the enforcement of the ice cream standard law passed by the legislature of 1909. This law is in conformity with the requirements of the State laws of most of the States. It differs from the national law in the fact that the butter fat requirement under the Michigan standard is 12%, whereas, under the national law the butterfat requirement is 14%. Inspectors reports in the department files show that the passage of this law has resulted in raising the butterfat standard of ice cream in Michigan from an average of 9% to an average of 12 9-10 per cent. Reports from the manufacturers of ice cream further show that the raising of the standard of quality required has increased the volume of business. In other words, the putting into effect of this law has proven decidedly beneficial both to the consuming public and to the producers.

Of the total amount expended under the supervision of this department, $45,030.00, the records show that $10,370.00 has been expended in the maintenance of the department laboratory. I took occasion in my report of one year ago, to call attention to the rapid extension of the laboratory work of the department. I then stated that the total salary expenditure for laboratory work in 1905 was $1,500.00; whereas, for the year ending June 30, 1908, the amount expended for laboratory salaries was $5,200.00. The extension of the work for the present year is shown from the fact that the increase in salaries, without raising any

individual salary, has been $1,460.00, making a total for the year of $6,660.00. Previous to 1905, the statute limited the amount to be expended for laboratory supplies to $500.00. During the past year the amount expended for laboratory supplies was $1,719.00. The other expenses classified as laboratory expenses consist of traveling expenses of the laboratory force and that portion of the postage and express account which is properly classed under this head. It is worthy of note that when the amount annually expended by this department was only $20,000.00; less than 15% was used for laboratory maintenance; whereas now, that the amount annually spent by this department has been increased to $45,000.00, nearly 25% is used for laboratory maintenance. This exhibit of facts explains more tersely than any other statement I might make, the high standard of scientific excellence attained by the Dairy and Food Department of this State.

During the year just passed, the State was honored through the holding of the annual meeting of the Association of State and National Food Departments at Mackinac Island in August, 1908. The meeting was one of the largest and most successful ever held by that association and did much to increase interest among the people of this State for a higher standard of food products and a more effective administration of food law. During the past year, I had the honor to serve as chairman of the executive committee of this association.

The general features of the Michigan Dairy and Food laws have left little to be desired along the line of new legislation. The last legislature, however, in response to a very general desire that a state drug law should be enacted practically in conformity with the national drug law, placed upon the statute books a most satisfactory measure, establishing requirements uniform with those of the most of the other states and the national government and placing the administration of said law with this department. The appropriation to carry out the purposes of this law was fixed temporarily at $6,000.00, an amount entirely inadequate to make effective its provisions. The legislature in limiting the appropriation to this amount fully understood its inadequacy, but owing to the financial condition of the State treasury, expressed, through the respective committees of the senate and house, the desire to make at least a beginning in the work. This law does not go into effect until July 1, 1910. At that time, there will be appointed an additional department chemist especially fitted for drug work and two inspectors with special training for the work required of them. The law wisely provides that the inspectors must be graduated pharmacists. While it would be absolutely necessary to ask succeeding legislatures for increased appropriations to properly carry on the work of drug inspection and drug control, it may fairly be presumed that this branch of the department work can be established upon a desirable footing even with a limited appropriation for the first year.

I cannot speak too highly of the work of the dairy division of the department. This work has resulted in the increase of the dairy products in this State by many millions of dollars during the five years that the new law relating thereto has been in effect. To Deputy Commissioner Colon C. Lillie and to State Analyst Floyd W. Robison must be given the credit for the rapid development of the department along dairy lines.

Mr. Lillie is a practical and successful dairyman and because of his practical and successful experience, his connection with this department brought the department immediately into close relations with the general dairy interests of the State. The broad training and splendid equipment of Mr. Robison along practical scientific lines at once opened to him a field of usefulness to the dairymen of the State, which has given to the department a reputation for practical work unexcelled by any State or any country. I cannot speak too highly of the invaluable assistance of these men in building up this department to its present standard of excellence.

To the department force in general and to the Chief Clerk, Mr. M. J. Smith, in particular, I take this opportunity of recording my appreciation of their loyal service. From a department in 1905 of from 12 to 14 workers to a department in 1909 of 53 workers is a long stride in advance and made justifiable only by splendid results. It is with no hesitancy that I go on record with the statement that the results have amply justified this growth and with equal confidence I desire to state that such results could never have been attained except through an organization of faithful, willing and effective men and women all working towards one common end. It is to each member of this organization that I here and now record my sincere thanks and heartfelt appreciation.

All of which is respectfully submitted,

A. C. BIRD,
State Dairy and Food Commissioner.

## PRESERVATIVES.

Hon. A. C. Bird, State Dairy and Food Commissioner, Lansing, Michigan:

Dear Sir:—You will recall that early in the year 1905, at your request, the writer began a series of studies having for their object the investigation of the possible effect on human beings of a class of substances known as chemical preservatives.

This work was entered into that answer might be made in the courts to the question, "Are chemical preservatives, when used in food products, deleterious to the public health?"

The matter submitted herewith deals with one of those so-called chemical preservatives, namely, the Sodium Salt of Benzoic Acid, otherwise known as Sodium Benzoate, which substance, during the last four years, probably has found the widest distribution in manufactured food products of any of the so-called food preservatives.

If the data submitted herewith meets with your approval, I recommend that it be published as a special bulletin of the Department and be given special distribution among consumers.

I beg to remain,

Very truly yours,
FLOYD W. ROBISON,
State Analyst.

## INTRODUCTORY.

The present paper has been preceded by two others, one of which, "Antiseptics in Tomato Catsup," was read before the Convention of State and National Food Departments at Jamestown, Virginia, in 1907; the other, "A Preliminary Paper on Preservatives in Food Products," was read before the Agricultural Section of the Michigan Academy of Science in 1908, but was not given out for publication.

This paper is the first to be completed of a series of General studies involving Benzoates, Salicylates, Borates and Formaldehyde.

The work was commenced in the summer of 1905, and has continued, with interruptions, up to the present time. The general plan of the experiment was laid out in 1905, and has been followed without any marked changes up to the present time.

Mr. Wilmer E. Robison, LL. B., and Miss Mable Mosher, B. S., have collaborated in the work herein recorded.

The autopsies and pathological examinations were performed by Dr. Ward Giltner, of the Bacteriological Department of the Michigan Agricultural College.

## GENERAL PLAN OF EXPERIMENT.

An extremely careful study of the whole problem involved suggested certain questions, the answer to which, if correctly given, might furnish positive evidence, or permit of the drawing of very close analogies.[1]

These questions, systematically arranged, are as follows:

I. Is the so-called preservative dissolved and absorbed by the body fluids?

II. If so absorbed, has the product any inhibiting or retarding influence on the digestive agents of the body?

III. Is the product in the strength wherein there is no appreciable retarding influence on the digestive agents in *reality a preservative?*

IV. What will be the effect of feeding to young animals for a considerable period in the food, such a quantity of a so-called preservative as will harmonize with questions II and III above?

V. What are the conditions, if any, that seem to require the employment of a preservative in food?

### I.

*Is the so-called preservative dissolved in and absorbed by the body fluids?*

Through the courtesy of the Grand Rapids Veterinary College, in 1905 and 1906, the writer conducted experiments on healthy dogs, to ascertain the solubility in the digestive juices of the following so-called preservatives: Benzoates (sodium), Salicylates (salicylic acid), Borates (borax) and Formaldehyde.

In each instance (two dogs), sodium benzoate was apparently completely absorbed and taken into the system of the animal. No sodium benzoate nor benzoic acid was eliminated in the feces and no unchanged benzoic acid was found in the urine.[2]

The question as to whether benzoate of soda is absorbed in the system is of course an important one, and while because of its nature and its great solubility in water, it might be considered almost self evident that absorption would take place, yet an experiment of this nature could hardly with safety have started with such an assumption alone. There is a considerable difference in the solubility of sodium benzoate

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[1]It is well to state at the very start the opinion prominent in the mind of the writer when the work was planned, that we are well aware that positive evidence of the injuriousness of any product may be established only by securing actual effects on human subjects. Regarding this, however, we will have more to say later. (See pages 30, 31.)

[2]This seems to be entirely in keeping with the results of other investigations on the fate of benzoic acid. It is entirely changed (in small quantities) to hippuric acid, whether eliminated completely in the urine or partially eliminated in the feces. (Parker & Lusk, Am. J. Physiol., 3-472.)

and that of benzoic acid, and inasmuch as sodium benzoate would be changed apparently to benzoic acid upon reaching the stomach, the question of absorbability, when administered in food, becomes a point for solution.

These observations throughout might profitably have been conducted by en-capsule administration, but here again another problem arises, to-wit, the possible effect of mass action, not only upon absorption of the sodium benzoate, but also upon cell function.

Wiley (Bulletin No. 84, Bureau of Chemistry, part 1, page 32) contends that the motor movement of the stomach would immediately guard against any possible mass effect, and there is no doubt that it would tend in this direction, but it seems doubtful if this contention will hold in its entirety, for it seems to us that this would mean a peristaltic effect not usually contemplated by most physiologists.

In studying drug action, the drug may be properly administered in capsule form, because physiological symptoms are desired, but we think a more logical method of studying a product used in food is to administer it in the food.

It is evident from this[1] and the work of others (Loc. Cit.) that sodium benzoate is quite readily absorbed in the stomach and is eliminated quite largely in the urine, thereby demonstrating its entrance into the animal system proper. It should be borne in mind, then, that an effect of sodium benzoate *a priori* should be looked for, further than a possible mere retarding influence on the digestive enzymes.[2]

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[1]Certain evidence likewise that glycuronic acid contributes to the elimination of benzoic acid, thereby tending to suggest a reason why it has been impossible to account by analysis of the urine and feces for all of the benzoic acid, ingested, in the food. (Magnus-Levy, Bichhem. Zeitzch, 6-502, 1907.)

The above also serves to illustrate how easily cumulative effect may be erroneously inferred when the analyses are not accompanied by autopsy. (Author.)

[2]Lehmann (Chem. Ztg., 32-951) maintains that benzoic acid administered in the food is eliminated by man and by carnivora as hippuric acid so long as the quantity ingested is not too large. He claims in cases of benzoic acid ingestion that the synthesis of hippuric acid takes place in the kidneys. (An observation not without interest in connection with our investigations recorded later.)

Magnus-Levy (Bicohem. Zeitzch, 1907, 6 heft 5 and 6) obtained benzoic acid eliminated in the free state when great quantities were ingested, and attaches great significance to its combination with glycocoll, claiming thereby a withdrawal of this latter product from the system in an attempt to convert the benzoic acid into the more easily soluble hippuric acid, and thereby of a consequence, disturbing the metabolic balance. That this may be a by no means remote possibility is shown by his own data whereby in feeding considerable quantities to herbivorous animals (sheep), he did succeed in having free benzoic acid eliminated. However, injudicious feeding (over feeding) does not necessarily furnish data comparable to rational administration of a product, and does not of itself necessarily indicate what the fate of the product ingested may be under conditions nearer to normal.

Lewinski (Arch. Exp. Path. in Pharm., 51-397) maintains that very large quantities would be required to cause an elimination of free benzoic acid in the urine, and thus presents no counter evidence of its solubility and absorbability when taken in the food in small or moderate quantities.

So much data is at hand to show that sodium benzoate is absorbed and hence enters the system proper, that this point was considered established, and beyond the determinations above referred to, it was considered unnecessary to pursue this point further. (Author.)

Vaughan (Jour. of Proceedings of National Association State Dairy and Food Departments, 1904, page 200). Title, "The Effects of Aluminum and its Salts on the Health of Man;—Is Aluminum Hydrate Soluble in Digestive Juice?".

## II.

*If absorbed, has the product any inhibiting or retarding influence on the digestive agents of the body?*

A. Action of Sodium Bensoate upon salivary digestion, *in vitro.*

### EXPERIMENT I.

Into each of eight (8) Erlenmeyer flasks was put 100 cc. of saliva mixture (75 cc. water + 25 cc. fresh human saliva). There was then introduced varying amounts of Sodium Benzoate as follows:

TABLE A.

| | | | | |
|---|---|---|---|---|
| Flask No. 1 ..... | No preservative..... | | | digested |
| Flask No. 2 ..... | 0.05 grams ..... | .05% ..... | 5/100% ..... | digested |
| Flask No. 3 ..... | 0.10 grams ..... | .10% ..... | 1/10 % ..... | digested |
| Flask No. 4 ..... | 0.20 grams ..... | .20% ..... | 2/10 % ..... | digested |
| Flask No. 5 ..... | 0.30 grams ..... | .30% ..... | 3/10 % ..... | digested |
| Flask No. 6 ..... | 0.50 grams ..... | .50% ..... | 5/10 % ..... | digested |
| Flask No. 7 ..... | 1.00 grams ..... | 1.00% ..... | 1 % ..... | digested |
| Flask No. 8 ..... | 2.00 grams ..... | 2.00% ..... | 2 % ..... | no digestion |

An equal quantity of cooked potato was then put into each of ten (10) test tubes, into the bottom of each of which had been blown a hole and which hole had been covered with a thick layer of glass wool on the inside of the test tube. The potato was placed on the glass wool and the tubes containing the potato were then lowered into the Erlenmeyer flasks containing the saliva mixture and all placed in the incubator over night.

In the morning, digestion had progressed in all of the tubes except No. 8 (2% benzoate) in which digestion had been completely inhibited. (Table A.)

There being in Expt. I, Table A, therefore no clew as to the rate of digestion[1] in the different tubes, the experiment was repeated, varying the amount of enzymes acting.[2]

### EXPERIMENT II.

Quantities of Sodium Benzoate were exactly the same in this experiment as in Expt. I. The enzyme acting was contained in 10 cc. saliva diluted with 90 cc. water. Digestion again progressed over night. In the morning, digestion had proceeded as shown in Table B.

[1]It may be that a substance may retard or accelerate digestion at the start and yet not disturb its final equilibrium. See J. Biol. Chem., VI, No. 2, p. 138.

[2]The greater the amount of enzyme acting, the less the inhibiting effect. See J. Biol. Chem., IV, 2 and 3, pp. 151-161. Loevenhart & Peirce.

TABLE B.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* |
|---|---|---|
| 1 | 0.00 | Digested |
| 2 | 0.05 | Digested |
| 3 | 0.10 | Digested |
| 4 | 0.20 | Digested |
| 5 | 0.30 | Digested |
| 6 | 0.50 | Almost inhibited |
| 7 | 1.00 | No digestion |
| 8 | 2.00 | No digestion |

## EXPERIMENT III.

A third experiment, conducted as in Expt. II, gave the following:

TABLE C.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Retarded | 90% |
| 4 | 0.20 | Retarded | 80% |
| 5 | 0.30 | Retarded | 60% |
| 6 | 0.50 | Inhibited (no digestion) | 0% |
| 7 | 1.00 | Inhibited (no digestion) | 0% |
| 8 | 2.00 | Inhibited (no digestion) | 0% |

## EXPERIMENT IV.

Pieces of glass tubing about three-fourths of an inch long were filled with cooked potato. These were put into test tubes containing saliva mixture as in Expt. II. Digestion here progressed two (2) days. (This time was necessary because of the small surface exposed to the enzyme.) At the end of this time, the digestion was stopped and the tubes preserved in glycerine. Results were obtained as follows:

TABLE D.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Digested | 100% |
| 4 | 0.20 | Inhibited | 0% |
| 5 | 0.30 | Inhibited | 0% |
| 6 | 0.50 | Inhibited nearly | 5% |
| 7 | 1.00 | Inhibited | 0% |
| 8 | 2.00 | Inhibited | 0% |

## B. Action of Sodium Benzoate upon Gastric Digestion, *in vitro*.

## EXPERIMENT V.

A series of test tubes, prepared as in the preceding experiments, but containing coagulated egg albumin, were placed in an artificial gastric juice containing varying percentages of Sodium Benzoate. Digestion

progressed 22½ hours in the incubator at the end of which time the enzymes were rendered inactive by heating the flasks. Results as follows:

TABLE E.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Nearly digested | 90% |
| 4 | 0.20 | Partly digested | 20% |
| 5 | 0.30 | Partly digested | 10% |
| 6 | 0.50 | No digestion | 0% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

EXPERIMENT VI.

Same as Expt. V. Digestion took place over night (12 hours).

TABLE F.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Nearly digested | 95% |
| 4 | 0.20 | Nearly digested | 90% |
| 5 | 0.30 | Slight digestion | 10% |
| 6 | 0.50 | Very slight digestion | 3% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

EXPERIMENT VII.

Same as Expt. VI.

TABLE G.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Nearly digested | 95% |
| 4 | 0.20 | About half digested | 50% |
| 5 | 0.30 | About half digested | 50% |
| 6 | 0.50 | Slight digestion | 10% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

EXPERIMENT VIII.

Same as Experiment VII.

TABLE H.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Digested | 100% |
| 4 | 0.20 | Digested | 100% |
| 5 | 0.30 | Digested | 100% |
| 6 | 0.50 | No digestion | 0% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

## EXPERIMENT IX.

Same as Experiment VIII.

TABLE I.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Nearly digested | 95% |
| 4 | 0.20 | A little over half digested | 70% |
| 5 | 0.30 | A little over half digested | 75% |
| 6 | 0.50 | No digestion | 0% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

## EXPERIMENT X.[1]

Same as Experiment IX.

TABLE J.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Digested | 100% |
| 4 | 0.20 | About one-third digested | 30% |
| 5 | 0.30 | No digestion | 0% |
| 6 | 0.50 | No digestion | 0% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

## EXPERIMENT XI.[1]

Same as Experiment X.

TABLE K.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested about one-half | 50% |
| 3 | 0.10 | No digestion | 0% |
| 4 | 0.20 | No digestion | 0% |
| 5 | 0.30 | No digestion | 0% |
| 6 | 0.50 | No digestion | 0% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

## EXPERIMENT XII.

Small glass tubes, 3 inches long, were filled with egg albumin, the albumin coagulated and the tubes placed in test tubes containing artificial gastric juice together with quantities of Sodium Benzoate as in

[1]In Experiments X and XI, a ninth tube was prepared to note the effect (for comparison) of the acid in the absence of pepsin on the coagulated albumin to be sure the observations recorded measured the activity of the enzyme. No digestion was noted and it is apparent that the results obtained are due either to the activity of the enzyme, or possibly as Novy found with formaldehyde (Jour. Exptl. Medicine, No. 4, 1899, p. 47) to rendering the albumin more difficult of digestion.

experiments above. When digestion had progressed to a point where the Blank was nearly digested, the enzyme was rendered inactive by heating and the tubes placed in glycerine.

TABLE L.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | About one-half digested | 50% |
| 3 | 0.10 | About one-half digested | 50% |
| 4 | 0.20 | About one-half digested | 50% |
| 5 | 0.30 | Less than one-half digested | 30% |
| 6 | 0.50 | Very slight digestion | 10% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

## EXPERIMENT XIII.

Same as Experiment XII.

TABLE M.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Digested | 100% |
| 4 | 0.20 | About one-half digested | 50% |
| 5 | 0.30 | About one-half digested | 50% |
| 6 | 0.50 | About one-fourth digested | 25% |
| 7 | 1.00 | Slight digestion | 10% |
| 8 | 2.00 | No digestion | 0% |

### C. Action of Sodium Benzoate upon Pancreatic Digestion, *in vitro*.

## EXPERIMENT XIV.

Solutions were prepared using .1 gram Pancreatin (Parke, Davis, extra active) in a 100 cc. solution. Test tubes were prepared as before and pieces of raw potato weighing about one gram put into them; after being in the incubator over night, the actions were recorded as follows:

TABLE N.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* | *% digested approximately.* |
|---|---|---|---|
| 1 | 0.00 | Digested | 100% |
| 2 | 0.05 | Digested | 100% |
| 3 | 0.10 | Digested | 100% |
| 4 | 0.20 | Nearly digested | 80% |
| 5 | 0.30 | No digestion | 0% |
| 6 | 0.50 | No digestion | 0% |
| 7 | 1.00 | No digestion | 0% |
| 8 | 2.00 | No digestion | 0% |

At the end of the second day, digestion had proceeded in all of the tubes in about the order recorded in Table N. Nos. 5, 6, 7 and 8 showed digestion, No. 8 much less action than the others.

EXPERIMENT XV.

Same as Experiment XIV.

Nos. 1, 2, 3, 4, 5 and 6 showed digestion in the order named with much the greatest digestion in 1 (Blank) and 2 (0.05 gr.). There was very little digestion in 6 (0.5 gr.) and none whatever in 7 (1.0 gr.) and 8 (2.0 gr.)

EXPERIMENT XVI.

Same as Experiment XV, except .2 gram Pancreatin was used.

Nos. 1, 2, 3, 4 showed digestion in the order given. Nos. 5, 4, 7 and 8 were completely inhibited.

EXPERIMENT XVII.

Same as Experiment XVI.

After four hours, digestion had progressed *only* in Nos. 1 (0.00 gr.) and 2 (0.05 gr.), but slowly in No. 2. No digestion in the others. After six hours, digestion also began feebly in No. 3 (0.10 gr.).

EXPERIMENT XVIII.

Same as Experiment XVI.

TABLE O.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* |
|---|---|---|
| 1 | 0.00 | Began to digest in 40 min. |
| 2 | 0.05 | Began to digest in 1½ hrs. |
| 3 | 0.10 | Began to digest in 3 hrs. |
| 4 | 0.20 | Began to digest in 4¾ hrs. |
| 5 | 0.30 | Began to digest in 5⅓ hrs. |
| 6 | 0.50 | Showed no digestion in 6 hrs. |
| 7 | 1.00 | Showed no digestion in 6 hrs. |
| 8 | 2.00 | Showed no digestion in 6 hrs. |

D. The effect of Sodium Benzoate associated with Rennin in the coagulation of milk.

EXPERIMENT XIX.

One hundred cc. milk were put into half pint bottles, raised to the temperature of 37½°-40°, varying percentages Sodium Benzoate added and 2 drops Rennin added, and the whole kept at constant temperature until coagulation took place.

TABLE P.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* |
|---|---|---|
| 1 | 0.00 | Coagulated in 18 min. |
| 2 | 0.05 | Coagulated in 19½ min. |
| 3 | 0.10 | Coagulated in 14½ min. |
| 4 | 0.20 | Coagulated in 17 min. |
| 5 | 0.30 | Coagulated in 29 min. |
| 6 | 0.50 | Coagulated in 32 min. |
| 7 | 1.00 | Coagulated in 47 min. |
| 8 | 2.00 | Coagulated in 1 hr. 22 min. |

TABLE Q.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* |
|---|---|---|
| 1 | 0.00 | Coagulated in 38 min. |
| 2 | 0.05 | Coagulated in 38 min. |
| 3 | 0.10 | Coagulated in 38 min. |
| 4 | 0.20 | Coagulated in 41 min. |
| 5 | 0.30 | Coagulated in 41 min. |
| 6 | 0.50 | Coagulated in 46 min. |
| 7 | 1.00 | Coagulated in 1 hr. 13 min. |
| 8 | 2.00 | Coagulated in 3 hrs. about. |

TABLE R.

| *Flask No.* | *Sodium Benzoate, grams.* | *Result.* |
|---|---|---|
| 1 | 0.00 | Coagulated in 39 min. |
| 2 | 0.05 | Coagulated in 39 min. |
| 3 | 0.10 | Coagulated in 37 min. |
| 4 | 0.20 | Coagulated in 34 min. |
| 5 | 0.30 | Coagulated in 39 min. |
| 6 | 0.50 | Coagulated in 41 min. |
| 7 | 1.00 | Coagulated in 1 hr. 46 min. |
| 8 | 2.00 | Coagulated in 1 hr. 51 min. |

*In Vitro* experiments have the disadvantage that it is impossible to provide absorption checks such as occur in the body (in vivo). Effects produced on enzymes *in vitro* may be greatly modified if we were enabled to readily study them under normal conditions in the body, and yet this very condition makes it desirable (in fact necessary) to study the process outside the body in order that the specific action of any given product upon the enzymes may measured. Studied by ligatured experiments for example, in the body, the activity of the enzyme may be to a more or less extent modified by the physiological action of the product under study upon the body, and thus to attain normal conditions is scarcely possible even *in vivo*. *In vitro* experiments have the advantage of providing known conditions, which conditions are made as *near normal* as possible, and it then becomes possible to observe the behavior of the enzyme towards the product under study. Vaughan clearly states that a study of the digestive processes outside the body is an important step in the study of the relation of a product used as a preservative in food.[1] He even attaches great significance to a product which may serve simply to neutralize the free hydrochloric acid of the gastric juice, and here the absorption checks manifest themselves fully as much as with the enzyme.

[1]Vaughan—J. Am. Med. Ass'n, Vol. 44, No. 10, 1905—"Inquiry into the effect of the substance in question on the digestive fluids and processes is legitimate in considering the claims of any food preservative, and in making this inquiry, it must not be forgotten that the preservative, if permitted, will be taken by those with every degree of digestive impairment as well as by the most vigorous. Neutralization of the free hydrochloric acid of the gastric juice is a matter of no little importance as every physician who has made many analyses of gastric contents can appreciate, and the action of the substance on the digestive enzymes is probably of still greater importance. * * * Interference with the normal processes of the alimentary canal means sooner or later disaster to every organ of the body. * * * The investigation of the effect of preservatives on the digestive processes should be made outside the body where they can be exactly determined."

## III.

*Is the product in the strength wherein there is no appreciable retarding influence on the digestive agents in reality a preservative?*

### EXPERIMENT XX.

E. Action of Sodium Benzoate on bacteria usually found in milk. (No attempt is made here to separate the different kinds of bacteria present. A milk of average sanitary quality was taken.)

A physiological salt solution (6 gr. per litre) was prepared and 200 cc. put into each of eight (8) flasks. In seven (7) of these flasks different qualities of Sodium Benzoate were introduced. The flasks were then sterilized and two drops of milk put into each flask. After standing 46 hours, and again after 95 hours, the petri dish cultures were made on agar-agar, 2 drops of the salt solution used in each culture.

After two (2) days, the colonies were examined.

TABLE S.

Forty-six hours treatment with Sodium Benzoate.

| *Flask No.* | *Sodium Benzoate, grams.* | *Colonies.* |
|---|---|---|
| 1 | 0.00 | Too many to count |
| 2 | 0.05 | Too many to count |
| 3 | 0.10 | Too many to count |
| 4 | 0.20 | Too many to count |
| 5 | 0.30 | Too many to count |
| 6 | 0.50 | Too many to count |
| 7 | 1.00 | Too many to count |
| 8 | 2.00 | 450,000 per cc. |

The flasks undergoing 95 hours treatment were plated and the cultures examined after 24 hours.

TABLE T.

| *Flask No.* | *Sodium Benzoate, grams.* | *Colonies compared to 46 hours.* |
|---|---|---|
| 1 | 0.00 | Too many to count—much increased |
| 2 | 0.05 | Too many to count—much increased |
| 3 | 0.10 | Too many to count—much increased |
| 4 | 0.20 | Too many to count—much increased |
| 5 | 0.30 | Too many to count—much increased |
| 6 | 0.50 | Too many to count—much increased |
| 7 | 1.00 | Too many to count—much increased |
| 8 | 2.00 | Too many to count—much increased |

F. Preservative action of Sodium Benzoate on Malt Extract.

A solution of Malt Extract prepared in a brewery and ready for use in connection with the manufacture of Beer was divided into seven parts of 100 cc. each. Six of these were treated with varying percentages of Sodium Benzoate (.05 per cent to 2.00 per cent) one being retained as a blank. The preserving effect of the Sodium Benzoate was studied from the point of acid production, which acidity is recorded in terms of cc. per unit volume of the liquid. (Unit vol. = 10 cc.)

TABLE U.

| Sodium Benzoate. | Initial acidity cc. | 5 days cc. | 14 days cc. | 43 days cc. |
|---|---|---|---|---|
| 0.00% | 5.0 | 17.9 | 31.0 | 29.0 |
| 0.10% | 5.0 | 9.4 | 14.0 | 32.0 |
| 0.20% | 5.0 | 6.0 | 10.0 | 12.0 |
| 0.30% | 5.0 | 5.0 | 8.0 | 8.5 |
| 0.50% | 5.0 | 5.0 | 6.0 | *5.5 |
| 1.00% | 5.0 | 5.0 | 5.0 | 5.5 |
| 2.00% | 5.0 | 5.0 | 5.0 | 6.5 |

*A loss of acid due probably to bacterial action.

G. Preservative Action of Sodium Benzoate on Beer Wort. A sample of Beer Wort obtained at same time as Malt Extract (F) was handled in the same way.

TABLE V.

| Sodium Benzoate. | Initial acidity cc. | 5 days cc. | 14 days cc. | 43 days cc. |
|---|---|---|---|---|
| 0.00% | 2.3 | 11.6 | 12.0 | ..... |
| 0.10% | 2.3 | 9.6 | 9.2 | 12.0 |
| 0.20% | 2.3 | 6.0 | 6.4 | 8.5 |
| 0.30% | 2.3 | 4.4 | 5.0 | 6.5 |
| 0.50% | 2.3 | 3.2 | 4.6 | 5.0 |
| 1.00% | 2.3 | 3.0 | 3.2 | 4.0 |
| 2.00% | 2.3 | 2.0 | 3.0 | 3.0 |

H. Preservative Action of Sodium Benzoate on Orange Cider.

Orange cider was prepared by pressing out the juice of oranges and after thoroughly mixing, was divided into seven (7) lots as in F and G, and acidity studied.

TABLE W.

| Sodium Benzoate. | Initial acidity cc. | 11 days cc. | 12 days cc. | 14 days cc. | 27 days cc. | 24 days cc. |
|---|---|---|---|---|---|---|
| 0.00% | 14.0 | 32.5 | ..... | ..... | ..... | ..... |
| 0.10% | 14.0 | 16.0 | 16.8 | 18.6 | 18.8 | 20.0 |
| 0.20% | 14.0 | 16.0 | 16.8 | 17.8 | 18.8 | 20.0 |
| 0.20% | 14.0 | 15.5 | 16.8 | 18.0 | 19.0 | 20.0 |
| 0.30% | 14.0 | 16.0 | *18.8 | 18.0 | *19.8 | 20.0 |
| 1.00% | 14.0 | 15.5 | 16.8 | 18.2 | 18.0 | 17.0 |
| 2.00% | 14.0 | 15.5 | 16.8 | 17.8 | *18.8 | 20.0 |

*The high color of the orange cider made acidity tests difficult and this may account for some slight irregularities.

I. Preservative Action of Sodium Benzoate upon Grape Juice and Strawberry Juice.

Experiments were conducted upon grape juice and also upon strawberry juice. The results were similar to those tabulated in Table W. In these juices, the color also made close acidity readings difficult.

J. Preservative Action of Sodium Benzoate upon Apple Cider. (Acidity determined as in V and W.)

Table X.

| Sodium Benzoate. | Initial acidity cc. | 5 days cc. | 6 days cc. | 10 days cc. |
|---|---|---|---|---|
| 0.00% | 3.5 | 10.7 | 21.3 | 21.3 |
| 2.00% | 3.5 | 3.5 | Gelatinized | |
| 1.00% | 3.5 | 3.5 | 3.5 | 3.6 |
| 0.50% | 3.5 | 3.5 | 3.5 | 3.9 |
| 0.30% | 3.5 | 3.5 | 3.5 | 4.2 |
| 0.20% | 3.5 | 3.5 | 6.8 | 11.8 |
| 0.10% | 3.5 | 7.9 | 9.7 | 11.5 |

K. Preservative Action of Sodium Benzoate upon milk. (Acidity determined as in V and W.)

TABLE Y.

| Sodium Benzoate. | Initial acidity cc. | 2 days cc. | 2 days cc. | 3 days cc. | 8 days cc. | 30 days cc. |
|---|---|---|---|---|---|---|
| 0.00% | 2.1 | Curdled. | | | | 35.5 |
| 0.10% | 2.1 | Curdled. 9.0 | | | | 33.0 |
| 0.20% | 2.1 | Curdled. 7.6 | | | | 18.5 |
| 0.30% | 2.1 | 5.5 | Curdled. | | | 17.0 |
| 0.50% | 2.1 | 3.8 | | Curdled. | | 15.8 |
| 1.00% | 2.1 | 2.8 | | | Curdled. | 12.3 |
| 2.00% | 2.1 | 2.1 | | | | Curdled. 9.3 |

It is evident that any product not a natural constituent of a food has no right in that product, except it supplies some desirable property or makes up some natural deficiency. A product used as a preservative must therefore act as a preservative if it may be allowed use in a food. It must in fact be a preservative.

If preservatives are used to check decomposition and to prevent the spread of infectious diseases[1] they must be present in quantities sufficient to accomplish those purposes. If the toxic dose of any substance is less than a quantity sufficient to act as a real preservative, then manifestly that product should not be permitted to be used as a preservative. It seems reasonable that if any given preservative is to be used (and antagonism to preservatives is not here contemplated in any way), the State should compel the manufacturer to use a quantity which experiment has demonstrated is ample to fulfill *all the purposes* for which the preservative is desired—not only to check fermentation but to eliminate dangers to health due to decomposition, etc.[1]

There are then two conditions which the product used as a preservative should meet, to-wit:

1. In the highest strength in which it is used, it must not materially impair any of the digestive processes.

[1]Lehmann (Chem. Zeitg., 32, p. 950) as a result of experiment found that 1% benzoic acid did not kill typhoid and cholera in 24 hours. Two per cent killed in 10 hours. Benzoic acid up to 0.5% did not prevent development, but only delayed development of typhoid and cholera; 1/20% not at all, 1/10% and 1/5% delayed very slightly. He found 5% sodium benzoate not as efficient as 1% benzoic acid in preserving meat extract. In acid mediums, 1% free benzoic acid had quite a strong preserving effect.

2. In the strength in which it does not disturb digestive processes, it must act as a real preservative.

## IV.

*What will be the effect of feeding to young animals for a considerable period in the food such a quantity of the so-called preservative as will harmonize with questions II and III?*

In this phase of the experiment, young kittens (six weeks old) in apparently normal conditions of health were used. These kittens were selected with considerable care, attention being given to the vigor of the mother and it might be said they were raised with the purpose of this experiment in mind. In all sixteen (16) kittens were placed under observation and these were divided into four different lots with four kittens in each lot. In these different lots, kittens from the same mother were distributed so that of one litter of four kittens for example, one would be in each cage. In this way, possible differences of physiological arrangement were guarded against. No pains were spared in the selection of healthy specimens and it is believed adverse criticism on this score cannot stand.

The kittens were given daily fresh cows milk as a diet care being observed to mix the milk thoroughly before pouring it into the different bottles. After bottling, the sodium benzoate was introduced and carefully dissolved. The milk was then placed on ice where it was kept until feeding time. Before feeding, the milk bottles were placed in a pan surrounded by water and carefully warmed slightly above body temperature and thus warmed was given to the kittens.

The kittens in cage No. 1 received milk containing 0.2 per cent Benzoate of Soda.

The kittens in cage No. 2 received milk containing 0.0 per cent Benzoate of Soda—the Control cage.

The kittens in cage No. 3 received milk containing 0.5 per cent Benzoate of Soda.

The kittens in cage No. 4 received milk containing 0.1 per cent Benzoate of Soda.

The weights of milk consumed daily were noted, together with apparent conditions of health and weights of the animals which were made weekly.

The following tables give the amounts of milk consumed and the average consumed per cat per day. These computations are for the purpose of permitting of a closer comparison than would be shown by the total amounts.

CAGE NO. 1. .2 PER CENT BENZOATE OF SODA.

| No. of cats. | Dates. | No. of days. | Total amount consumed. | Average per cat. | Average per cat per day. |
|---|---|---|---|---|---|
| 4..... | June 1-8, 1909..... | 7 | 1,905 cc | 476 cc | 68cc |
| 3..... | June 8-22, 1909..... | 14 | 2,787 cc | 929 cc | 66+cc |
| 2..... | June 22-28, 1909..... | 6 | 424 cc | 212 cc | 37cc |
| 1..... | June 28-July 3..... | 5 | 238 cc | ..... | 39+cc |

CAGE NO. 2. NORMAL.

| No. of cats. | Dates. | No. of days. | Total amount consumed. | Average per cat. | Average per cat per day. |
|---|---|---|---|---|---|
| 4..... | June 2-6, 1909..... | 4 | 2,207 cc | 551.7 cc | 110.4+cc |
| 3..... | June 6-22, 1909..... | 16 | 5,535 cc | 1,845.cc | 115.3 cc |
| 2..... | June 22-July 3..... | 11 | 2,596 cc | 1,298.cc | 109-cc |

CAGE NO. 3. .5 PER CENT BENZOATE OF SODA.

| No. of cats. | Dates. | No. of days. | Total amount consumed. | Average per cat. | Average per cat per day. |
|---|---|---|---|---|---|
| 4..... | June 2-8, 1909..... | 6 | 772 cc | 193 cc | 32+cc |
| 3..... | June 8 and 9..... | 2 | Normal milk 267 cc | 89 cc | 44.5cc |
| 3..... | June 9-12..... | 2½ | Pres. milk 352 cc | 117.3 cc | 47-cc |
| 1..... | June 12-16..... | 4 | * | ..... | ..... |
| 1..... | June 17-21..... | 4½ | Pres. milk 93 cc | 93 cc | 20.6+cc |

*Normal milk till cat recovered. Quantity not noted.

CAGE NO. 4. .1 PER CENT BENZOATE OF SODA.

| No. of cats. | Dates. | No. of days. | Total amount consumed. | Average per cat. | Average per cat per day. |
|---|---|---|---|---|---|
| 4..... | June 2-22, 1909..... | 19 | 8,551 cc | 2,137.5c | 112.5cc |
| 3..... | June 22-July 3..... | 11 | 5,458 cc | 1,819.3cc | 165.4cc |

Likewise, the weekly weights of the animals are tabulated also with the dates of deaths and autopsies.

WEIGHTS OF CATS, CAGE NO. 1.

| Date. | Yellow. | White. | Grey. | Black. |
|---|---|---|---|---|
| May 27, 1909..... | 453 gr | 453 gr | 425 gr | 510 gr |
| June 1..... | 433.5 gr | 442 gr | 4305 gr | 514 gr |
| June 8..... | 384 gr | 397 gr | 341 gr Dead | 480 gr |
| June 15..... | 368 gr | 403 gr | ..... | 452 gr |
| June 22..... | 293 gr Dead | 364 gr | ..... | 427 gr |
| June 28..... | ..... | ..... | ..... | 344 gr Dead |
| June 30..... | ..... | 337 gr | ..... | ..... |
| July 4..... | ..... | 308 gr Dead | ..... | ..... |

WEIGHT OF CATS. CAGE NO. 2.

| Date. | Grey. | Black and white. | Yellow. | All black. |
|---|---|---|---|---|
| May 27, 1909 | 368 gr | 651 gr | 396 gr | 566 gr |
| June 1 | 350 gr | 640 gr | 392 gr | 595 gr |
| June 8 | *Dead | 652 gr | 389 gr | 605 gr |
| June 15 | ..... | 629 gr | 420 gr | 605 gr |
| June 22 | ..... | 652 gr | 422 gr | 644 gr |
| June 30 | ..... | 653 gr | ..... | 635 gr |

*Accidental death.

WEIGHT OF CATS, CAGE NO. 3.

| Date. | Black and white. | White face. | White tip tail, nose white. | Grey face. |
|---|---|---|---|---|
| June 2 | 444 gr | 435 gr | 395 gr | 372.5 gr |
| June 8 | 347 gr | Died not Posted.. | 329 gr | 329 gr |
| June 12 | 342 gr Dead | ..... | 288 gr posted | ..... |
| June 15 | ..... | ..... | ..... | 315 gr |
| June 22 | ..... | ..... | ..... | 261 gr Dead |

WEIGHT OF CATS. CAGE NO. 4.

| Date. | Black and white. | Yellow. | White, grey tip tail. | Maltese. |
|---|---|---|---|---|
| June 2 | 425 gr | 349 gr | 445 gr | 315 gr |
| June 8 | 473 gr | 355 gr | 485 gr | 341 gr |
| June 15 | 550 gr | 330 gr | 524 gr | 384 gr |
| June 22 | ..... | 300 gr Dead | ..... | ..... |
| June 30 | 582 gr | ..... | 580 gr | 355 gr |

HEALTH OBSERVATIONS.

| Date. | Cage No. 1. | Cage No. 2. | Cage No. 3. | Cage No. 4. |
|---|---|---|---|---|
| June 3 | Normal | Normal | Normal | Normal. |
| June 4 | Normal | Normal | Normal | Normal. |
| June 5 | Normal | Normal | Not well | Normal. |
| June 6 | Normal | Normal | Not well | Normal. |
| June 7 | Normal | Normal | * | Normal. |
| June 8 | Normal | Normal | * | Normal. |
| June 9 | Normal | Normal | Normal | Normal. |
| June 10 | Normal | Normal | Normal | Normal. |
| June 11 | Normal | Normal | Not well | Normal. |
| June 12 | Not well | Normal | Sick | Not well. |
| June 13 | Not well | Normal | * | Not well. |
| June 14 | Not well | Normal | * | Not well. |
| June 15 | Not well | Normal | * | Not well. |
| June 16 | Not well | Normal | Normal | Not well. |
| June 17 | Not well | Normal | Normal | Not well. |
| June 18 | Not well | Normal | Sick | Not well. |
| June 19 | Sick | Normal | Very sick | Not well. |
| June 20 | Very sick | Normal | Very sick | Not well. |
| June 21 | Very sick | Normal | Very weak | Weak. |
| June 22 | Very sick | Normal | All dead. | Not well. |
| June 23 | Very sick | Normal | | Not well. |
| June 24 | Very sick | Normal | | Not well. |
| June 25 | Very sick | Normal | | Not well. |
| June 26 | Very sick | Normal | | Not well. |
| June 27 | Very sick | Normal | | Not well. |
| June 28 | Very sick | Normal | | Weak. |
| June 29 | Very sick | Normal | | Weak. |
| June 30 | Very sick | Normal | | Weak. |
| July 1 | Very sick | Normal | | Little better. |
| July 2 | Very sick | Normal | | Little better. |
| July 3 | Very sick | Normal | | Little better. |

*Kittens very sick, fed pure milk until recovery.

## OBSERVATIONS BY DR. WARD GILTNER.

Between June 12 and July 6, 1909, I examined a number of kittens used in the above described experiments.

I found the kittens in a well ventilated, cool basement in locked cages in a room under lock and key. The cages and feeding dishes were in good condition for the experiment. Cleanliness prevailed. At my first visit and thereafter, I noted a marked difference in the condition of the kittens in the different cages.

The kittens on untreated milk diet had usually consumed all their milk, were in good condition, appeared thrifty and were quite playful. A piece of rope hanging on the side of the cage was badly frayed as a result of their playfulness.

The kittens that were said to be receiving 0.1 per cent Sodium Benzoate were fairly thrifty, but not quite so vigorous or playful as the normal kittens. The rope in the cage was perceptibly less worn.

The kittens that were said to be receiving 0.2 per cent Sodium Benzoate were thin and not very vigorous. They showed a rough coat and at succeeding visits individuals showed the tail soiled with hair matted close to the skin. Their milk was never all consumed. They showed little tendency toward playfulness and the rope hanging in the cage was little worn.

The kittens said to be receiving 0.5 Sodium Benzoate were very unthrifty, weak and emaciated. Their coats were rough, tails soiled and

their voices were very feeble. They apparently ate little of the milk given them after the date of my first visit. They exhibited no tendency to play and the rope in their cage showed no signs of damage from kittens' claws.

The most striking ante-mortem changes in the experimental kittens were general appearance of weakness and unthriftiness, constipation and lack of appetite.

The post mortem findings were not conspicuous from a gross pathological view point.

There was great weakness in the experimental kittens chloroformed, as compared with the normal.

The experimental kittens were greatly emaciated and the liver, spleen and kidneys were generally smaller in size than in the normal kittens. One exception to this was noted in the liver of "Black female, Cage 1," which was increased in size.

The under size or atrophy in the organs mentioned was probably in ratio to the general emaciation of the body.

There was a marked bloodless condition of all the tissues in the bodies of the experimental kittens as compared with the normal kittens.

The organs, especially the liver and kidneys, of the experimental kittens were much lighter in color than the corresponding organs in the normal kitten.

There was usually a contracted condition of the musculature of the gastro-intestinal tract and only a small amount of ingesta.

The contents of the small intestine usually showed streaks of dark material, probably bile pigment. The contents of the large intestine was very firm especially in the rectum.

While there was probably a considerable aenemia in all the experimental animals, positive statements cannot be made on this part because of the absence of any blood examinations.

A limited histological examination of the liver and kidneys showed the following:

*Cage No. 1.* Female yellow.

Kidneys showed almost total absence of blood in vessels except in few small veins between cortex and medulla; epithelial tissue stains fairly well.

Liver shows injection of interlobular, intralobular veins and capillaries; slight increase in interlobular connective tissue; epithelial tissue stains well.

*Cage No. 2.* Female yellow.

Kidneys show sub-capsular veins injected, also veins and capillaries throughout; epithelial tissue takes stain well.

Liver shows very little interlobular connective tissue; vessels generally injected; parenchymatous tissue stains well.

*Cage No. 3.* Female, grey face.

Kidneys show injection of subcapular veins and veins between cortex and medulla; epithelial tissue stains well.

Liver shows slight increase in interlobular connective tissue; interlobular and intralobular veins and a few capillaries injected with blood; the peripheral portion (¼ to ⅓) of each lobule shows extreme degeneration of the parenchymatous tissue so that the liver cells are absent, only a very fine net work of connective tissue being present; the central portion of each lobule show advanced cloudy swelling of the parenchyma.

## AUTOPSIES.

*Cage 1.* Female Yellow Cat.

June 22nd chloroformed. Weight 293 grams. Considerably emaciated. Bladder distended with pale amber colored urine. Blood vessels supplying surface of kidneys congested, substance of kidneys pale on surface, medula very pale, cortex slightly pink. Lungs very slightly congested, probably due to chloroform. An excess of periodical fluid. Heart muscle appears pale. Heart is diastole. Very small amount of non-coagulated blood in each side. Spleen appears lighter color than normal, very faintly pinkish. Stomach contains very small amount of blackish, viscid, slightly frothy substance. Mucous membrane of stomach greyish color. Walls contracted. Numerous round worms in small intestine. Mucous membrane of duodenum greyish. Duodenum almost empty except for small amount viscid fluid, flaked with dark masses, adhering to mucosa. Liver deep red color, considerably gorged with blood (weight 13.6 grams). Small amount yellowish brown gall slightly viscid. The jejunum practically empty, contracted. Mucous membrane greyish. Blood vessels supplying intestines slightly injected. Ileum contracted; contains slight amount of thick, viscid, blackish material; mucous membrane greyish. Large intestine contains dark, granular, thin, pasty mass, having foul odor, becomes firmer and yellowish toward rectum. Rectum dilated with firm mass of feces, yellowish, pasty, covered with blackish material; mucous membrane greyish.

*Cage 1.* Black Female.

Died June 28th. Weight 344 grams. Post mortem 12 to 20 hours after death. Extremely emaciated. Bladder distended with urine; amber colored; kidneys small. Blood vessels of surface injected; light color on outside. Medulla light color on section, cortex pinkish. Lungs; normal. Heart in diastole, dark non-coagulated blood in each side. Liver slightly pink and greyish. The gall bladder contains small amount thick, viscid brownish yellow bile. On section liver shows same color as outside; greatly increased in size. Spleen has normal color and texture. Pancreas appear normal. Mesenteric lymph glands dark on section, nearly black as if from a deposit of pigment. Stomach practically empty except slightly viscid, dark brown mucus near pyloric end. Duodenum shows slight amount of same dark viscid mucus near orifice of bile duct; remainder of duodenum empty; mucous membrane greyish. The blood vessels supplying intestines slightly injected. Jejunum nearly empty, only slight amount slimy material adhering to mucosa. Mucous membrane greyish. Several round worms present.

Ileum nearly empty, mucous membrane greyish. Towards distal end of ileum, small amount dark thick ingesta. Large intestine distended with mass of dark feces which increases in firmness from caecum to rectum where it becomes hard and cheesy and yellow in color. Mucous membrane greyish.

Weight of liver 36 grams.
Weight of left kidney 2 grams.
Length of spleen 4.2 c. m.
Otherwise in proportion.

*Cage 1.* Female, White.

Found dead July 6th. Weight 308 grams. Considerably emaciated. Bladder nearly empty, very pale. Blood vessels on surface of kidneys injected, pale on surface on section, cortex pale, medulla pink. Lungs normal except ventral lobe on right side shows congestion, probably hypostatic. Heart in diastole, soft clot in both sides. Heart muscle slightly pale. Spleen normal in color and texture. Pancreas apparently normal. Liver enlarged, soft, friable, very pale. Gall bladder distended. Gall very limpid, brownish yellow in color. Liver has appearance of having increase in interlobular connective tissue. Stomach contracted, contains only small amount dark viscid, slimy liquid, slightly frothy. Mucous membrane pale, greyish. Duodenum nearly empty, mucous membrane pale, greyish. Round worms present. Jejunum nearly empty except for slight amount slimy material clinging to mucosa. Mucous membrane greyish. Blood vessels supplying intestines injected. Ileum contains slightly increased amount of same material found in jejunum and contains streaks of dark material, probably bile pigment. Caecum filled with firm pasty mass composed of yellowish and dark layers. Mucous membrane greyish. Remainder of large intestine nearly empty except rectum which is distended with large amount of cheesy mass, yellow in color, surrounded by dark slimy material. Mucous membrane of large intestine is pale grey.

Weight of liver 19 grams.
Weight of kidneys 2 grams each.
Length of spleen 5.2 c. m.

*Cage 2.* Yellow, female.

June 22nd, chloroformed. Weight 422 grams. Condition fair, quite vigorous. Bladder partly distended. Urine light amber colored. Spleen is normal, dark in color, mottled with darker areas. Kidneys larger than two others (cage 1 and cage 3), appearance as follows: Blood vessels supplying surface injected, color faintly pink on surface, same on section, both in cortex and corticle portion of medulla. Liver tissue firm but very friable, light color on surface. Gall bladder is practically empty, small amount of bile which exudes from ductus communis is greenish yellow, like glycerine. Liver contains considerable blood on section. The interlobular tissue quite abundant. Lungs only slightly congested, probably result of anaesthetic. Heart in diastole contains small amount non-coagulated blood in each side. Heart muscle light in color. Stomach nearly empty, contains small amount of frothy, viscid yellowish liquid towards pyloric end. Stomach contracted,

mucous membrane greyish color. Duodenum contains small amount frothy yellow, viscid fluid. A few round worms present. Intestines contracted, walls very firm. Jejunum contains slightly greater amount of yellowish ingesta; same applies to ileum. Blood vessels supplying intestines slightly injected. Large intestine contains in proximal part a considerable amount of yellowish, frothy, viscid, thin, pasty ingesta. In distal portion ingesta is firm and pastry, has uniformly yellow color, is not nearly so firm as in cages 1 and 3. Mucous membrane greyish color.

Normal spleen, 6 c. m. long.

Weight of liver, 27 grams.

*Cage 3.* Black and White.

June 12th, died and examined. Weight 342 grams. Emaciation extreme. Bladder greatly distended. Left kidney congested on surface. Right kidney in same condition, less intense. Cortex and medulla faintly pink, pelvis pale. Left lung shows hypostatic congestion. Right lung shows apex congested; also dependent lobules of right and left cephalic and ventral lobes; probably hypostatic. Heart in diastole. Right ventricle contains soft clot and dark fluid blood. Heart muscles pale. Liver appears enlarged, mottled with light grey and reddish areas, partly due to post mortem changes. Cholecyst greatly distended. Stomach greatly contracted and practically empty. Serosa of alimentary canal slightly pale. Mucous membrane of large intestine very pale; contents, a small amount of yellowish, pasty material, reddish in distal portion, probably due to blood pigment. Mucous membrane of small intestine very pale. Few round worms present. First two inches of duodenum contains slimy yellowish, brown material, slightly frothy; at pyloric end of stomach, slightly viscid streaked with black. Remainder of small intestine empty. Slight ascites.

Length of spleen, 5½ c. m.

Weight of liver, 19½ grams.

*Cage No. 3.* White tip tail, white nose.

June 12th, cloroformed. Emaciation extreme. Bladder contains small amount of urine. Kidneys congested on surface, cortex and medulla faintly pink, pelvis pale. Lungs slightly congested. Heart in diastole; small amount of fluid blood in both cavities. Liver appears normal; cholecyst distended with bile. Serosa of ailmentary tract pale, mucous membrane of intestines pale, large intestine including caecum contains pasty substance. Muscles of small intestine contracted. Mucous membrane very pale. Ileum empty, jejunum contains small amount of viscid fluid. Stomach greatly contracted and practically empty. Few round worms in small intestine.

Length of spleen, 4½ c. m.

Weight of liver, 13½ grams.

*Cage No. 3.* Grey face, female.

June 22nd, died and examined. Greatly emaciated. Bladder full. Urine light amber colored. Blood vessels supplying surface of kidneys

congested. Substance of kidneys pale on surface; medulla slightly pink. Liver apparently enlarged; the interlobular tissue increased in amount and stands out as a greyish network with liver cells in the meshes as fine red dots. The cholecyst greatly distended. Gall is semi-gelatinous, slightly viscid, of a brownish color. Spleen apparently normal in size and color. Lungs show hypostatic congestion in left lobes and right cephalic lobe. Heart in diastole; small amount non-coagulated blood in both cavities; heart muscle pale. Mesenteric lymph glands have greyish color, apparently normal. Pancreas appears normal. Stomach contains small amount of viscid liquid flaked with dark brown viscid material, probably owing color to bile pigment. Stomach contracted throughout. Duodenum contains only small amount of viscid, yellowish brown liquid; mucous membrane light greyish. Blood vessels supplying intestines slightly injected. Contents and conditions of jejunum comparable with that of duodenum. Few round worms in jejunum. Ileum contains dark viscid material. Mucous membrane of ileum greyish. Dark material is firmer in distal portion, tinged with bile pigment. Mucous membrane of large intestine is pale greyish; contents very firm pasty material, yellowish color with coating of same dark material found in small intestine. Rectum is dilated with very firm, greyish mass of feces. Mucous membrane of large intestine is slightly pinkish at areas corresponding to location of firm contents.

Weight, 261 grams.

Weight of liver, 15.5 grams.

*Cage No. 4.* Yellow, female.

June 24th, chloroformed. Considerably emaciated. Quite weak. Bladder empty. Kidneys small, vessels supplying outside injected, light color on outside, pale on section, except on border between cortex and medulla which is slightly pink. Lungs considerably congested, probably due to chloroform. Heart in diastole, nearly empty, pale color. Liver greyish with slight faded pink areas. Gall bladder empty. Liver light greyish on section, increased in size. Spleen normal in color and texture. Pancreas normal. Stomach contains slight amount of curdled milk in cardiac end. Walls contracted, mucous membrane greyish. Duodenum nearly empty; mucous membrane greyish, except number of longitudinal congested streaks. Round worms quite numerous. Blood vessels supplying intestines injected. Jejunum practically empty, mucous membrane greyish. Ileum contains slight amount of yellow material, having consistency of custard; mucous membrane greyish.

Large intestine contains considerable amount of pasty, thick, dark, yellowish material, having about same consistency throughout; mucous membrane greyish.

Weight of liver, 21 grams.

Weight of kidneys, 2 grams each.

Length of spleen, 5.2 c. m.

AUTOPSY.

| | | Bladder. | Kidneys. | Lung—Heart. | Spleen—Liver. |
|---|---|---|---|---|---|
| Cage No. 1. Female Yellow chloroformed 6-22-09. | Weight 293 gr. considerably emaciated, weak. | Bladder distended. Urine pale amber colored. | Peripheral vessels injected. Surface pale, medula pale, cortex slightly pink. | Lungs slightly congested. Excess of pericardial fluid. Heart muscle pale, diastole, uncongulated blood. | Spleen light color. Liver deep red, gorged with blood. Small amount bile. Weight 13.6 gr. |
| Cage No. 1. Female Black died 6-28-09 | Weight 3 4 gr. Extremely emaciated. | Bladder distended. Urine pale amber color. | Peripheral vessels injected. Surface pale, medulla pale, cortex slightly pink. | Lungs normal Heart in diastole, uncoagulated blood. | Spleen normal, 4. 2 c. m. long. Liver slightly pink and greyish. Increased in size. Small amount bile. Weight 36 gr. |
| Cage No. 1. Female White died 7-6-09. | Weight 308 gr. Considerably emaciated. | Bladder nearly empty. | Peripheral vessels injected. Surface pale, cortex pale, medulla pink. | Slight congestion of lungs. Heart in distole. Soft clot in cavities. Muscle pale. | Spleen normal. 5.2 c. m. long. Liver appears to have increase in interlobular tissue. cholecyst distended Weight 19 gr. |
| Cage No. 2. Female Yellow chloroformed 6-22-09. | Weight 422 gr. Fair condition. Quite vigorous. | Bladder partly distended. Urine light amber colored. | Peripheral vessels injected. Surface slightly pink, cortex and medulla pink. | Slight congestion of lungs. Heart in diastole. Uncoagulated blood. | Spleen normal. 6 c. m. long. Liver firm, light color, friable. Very little bile. Conriderable blood in liver. Weight 27 gr. |
| Cage No. 3. Female, Black and White died 6-12-09. | Weight 342 gr. Extremely emaciated. | Bladder greatly distended. Urine pale amber colored. | Peripheral vessels injected. Cortex and medulla faintly pink. | Slight congestion of lungs. Heart in diastole, soft clot, muscle pale. | Spleen 5.5 c. m. long. Liver mottled l'ht grey and reddish areas. Cholecyst distend'd Weight 19½ gr. |
| Cage No. 3. White tip tail white nose chloroformed 6-12-09. | Weight 288 gr. Extremely emaciated. | Bladder nearly empty. | Peripheral vessels injected. Cortex & medulla faintly pink. | Slight congestion of lungs. Heart in diastole. Uncoagulated blood. | Spleen 4.5 c. m. long. Liver normal. Cholecyst distend'd. Weight 13.5 gr. |
| Cage No. 3. Female Grey Face died 6-22-09. | Weight 261 gr. Extremely emaciated. | Bladder distended. Urine light amber colored. | Peripheral vessels. injected. Surface pale, medulla slightly pink. | Lungs slightly congested. Heart in diastole. Uncoagulated blood muscle pale. | Spleen normal. Liver appears to have increase in interlobular tissue. Cholecyst distended. Weight 15.5 gr. |
| Cage No. 4. Female Yellow chloroformed 6-24-09. | Weight 300 gr. Conriderably emaciated. | Bladder empty. | Peripheral vessels injected. Surface pale, cortex and medulla pale, except between. | Lungs congested. Heart in diastole. Nearly empty, muscle pale. | Spleen normal, 5.2 c. m. long. Liver light greyish and faded pink areas. Cholecyst empty. Weight 21 gr. |

SUMMARY.

| Stomach. | Duodenum. | Jejunum. | Ileum. | Large Intestine. |
|---|---|---|---|---|
| Small amount blackish viscid frothy ingesta. Mucosa greyish contracted. | Round worms. Small amount viscid fluid flaked with dark masses. Mucosa greyish. | Mucosa greyish nearly empty. | Slight amount of thick viscid, blackish material. Mucosa greyish. | Dark, granular, thin pasty mass, foul odor. Firmer nearer rectum. |
| Practically empty except for viscid dark brown mucus near pyloric end. | Slight dark viscid mucus near pyloric end of stomach. Mucous membrane greyish. Few round worms. | Nearly empty. Mucosa greyish. | Nearly empty. Small amount of dark, thick ingesta near distal end. Mucosa greyish. | Distended with mass of dark feces, increasing in firmness with cæcum to rectum. Mucosa greyish. |
| Stomach contracted. Small amount of dark, viscid slimy liquid. Mucosa greyish. | Nearly empty. Mucosa greyish. Round worms present. | Nearly empty. Mucosa greyish. | Slight amount of slimy material. streaked with dark, | Cæcum filled with firm pasty mass. Rectum distended with cheesy mass. Mucosa greyish. |
| Stomach nearly empty. Slight amount of frothy viscid liquid toward pyloric end. Mucosa greyish. | Small amount of frothy yellow viscid fluid. Few round worms. Contracted. | Slightly greater amount of yellow ingesta. | Same as jejunum. | Considerable yellowish frothy, viscid, thin, pasty ingesta in proximal portion. In distal portion, ingesta more firm and pasty. |
| Nearly empty. Contracted at pyloric end. Slight viscid material tinged with black. | Slimy, yellowish material, frothy Few round worms. | Empty. | Empty. | Small amount of yellowish pasty material, reddish in distal portion., |
| Greatly contracted. Practically empty. | Mucosa pale. Few round worms. | Empty. | Empty. | Contains pasty substance. |
| Small amount of viscid liquid flaked with dark brown. Contracted. | Small amount of viscid yellowish brown liquid; mucosa greyish. | Some as duodenum Few round worms. | Dark, viscid material, firmer in distal portion. Mucosa greyish. | Firm pasty material, yellowish with coating of dark. Rectum dilated with firm greyish mass. Mucous membrane pinkish in places. |
| Slight amount of curdled milk in cardiac end. Walls contracted Mucosa greyish. | Nearly empty. Mucosa greyish. Longitudinal congested streaks. Round worms quite numerous. | Like duodenum. | Slight amount of yellowish custard-like material. | Considerable pasty, thick, dark, yellowish material. Mucosa greyish. |

It is conceded at the beginning of this experiment that the product under study is to be used as a preservative for human food. The claim therefore will be advanced that the results are not comparable to results on human beings. The procedure, we are aware, is different from that adopted by Wiley[1] and likewise by the Referee Board[2], who selected human subjects for observation and who as a result, obtained results exactly opposite, Wiley contending as a result of his experiments that Benzoate of Soda is injurious to health, and the Referee Board contending as a result of experiment the exact opposite.

Our reasons for selecting animals as subjects are in the main as follows:

1. We are able to select *young animals* and thus get them at an age when we may feel reasonably sure they are not specifically braced against disturbances of the metabolic functions, and yet be of such an age that digestive processes are practically normal. It is believed by this procedure that we are selecting animals whose susceptibility may compare favorably with specially susceptible human beings.[3] We would not select mature (adult) animals for the same reason we would not select mature, athletic men, as we would not expect such individuals to be easily susceptible to a derangement of the metabolic functions. Were we to secure results of a harmful nature with mature subjects apparently braced against digestice disturbances— in other words, strong, vigorous—we might reason with considerable force that the product under study was of a harmful nature. However, were we to observe no deleterious results whatsoever, we might commit a serious error[4] if we conclude thereby that the product is entirely harmless.

2. A second reason for using animal subjects instead of human subjects is that at the conclusion of the experiment and from time to time during the experiment, we may conduct autopsies and subsequent analyses which may shed some light on the problems we are studying.[5]

The value of animals for experiments of this nature has been demonstrated a great many times.

Vaughan[6] used cats to a great extent in his experimental study which

Kionka[7] used dogs in his experiments on Sulphites.

Lebbin[8] used dogs likewise in his experiments on Sulphites.

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[1]Wiley, Bureau of Chemistry, authorized by act of Congress to conduct investigations on preservatives and coloring matters. Bulletin 84.

[2]The Referee Board appointed by President Roosevelt: Professor Ira Remsen, Professor R. H. Chittenden, Professor John H. Long, Dr. C. A. Herter.

[3]Vaughan, Jour. Am. Med. Ass'n, Vol. 44, p. 10. * * * "In making this inquiry, it must not be forgotten that the preservatives, if permitted, will be taken by those with every degree of digestive impairment as well as by the most vigorous."

[4]The greatest of scientific errors is the drawing of positive conclusions from negative evidence.

[5]Vaughan (*Ibid.*) in the course of an address on the subject of preservatives, lays great stress on the value of animal experiments, claiming it to be decidedly more scientific and valuable as well as furnishing more reliable data.

[6]Vaughan and Novy, Ptomains and Leucomains.
demonstrated the toxicity of Tyrotoxican.

[7]Kionka—"Ueber die Gift Wirkung der Swefligen Saure und ihrer Salze und deren Zulassigkert in Nahrungsmitteln." Zeutschr f. Hygiene, XXVII, 350.

[8]Lebbin—"Die Conservirung und Farbung Von Fleischwaaren." Alleg. Flescher Ztg. No. 9.

Harrington[1] used cats in his work on the effect of Sodium Sulphite.

Annette[2] used young kittens in his experiments on Boric Acid.

Wesener & Teller[3] place great stress on the value of animal experiments and while the kind of animals is not stated (presumably guinea pigs, rabbits or cats), yet demonstrate their belief in the reliability of animal experiments.

Boyce[4] used young kittens in his experiments to determine the effect of boracic acid and formaldehyde on the health of children, giving the preservatives in the milk as they would be given to children, were their use permitted in milk.

## V.

*What are the conditions if any that seems to require the employment of preservative in food?*

The collection of data favorable or unfavorable to the employment of preservatives from the standpoint embodied in the above question is not contemplated in this study. It is no doubt true that there is a field where a preservative which meets the conditions which are laid down in this paper is needed, and such a preservative may be of decided value to humanity in converting to use the immense quantities of food, such as fruits, etc., which may now go to waste. Indeed, there may be times when the use of preservatives is legitimate even though it may be injurious to health, but such a time and such a condition should clearly stand upon its own footing, and would in no wise affect the use in general of such preservatives. An extremely heavy campaign in war or an expedition in the interests of science, and the like, may require the use of a preservative which it is clearly demonstrable is injurious to health, and yet the very necessity of the work makes the consideration of the harmfulness of the preservative a secondary consideration. In medicine, a drug may be given which it is generally known is injurious decidedly to the animal body, and yet the end sought may justify its use.

Again, it is possible that the use of a *proper* preservative might tend to keep the prices at which fruit and the like are sold within the means of the poorer people, and thus in this way be of an advantage.

However, another condition confronts us and that is that very frequently the preservative is the cloak which conceals inferiority in food and disguises the filthy and insanitary methods used in the preparation of that food. Certain it is as Bitting (Bulletin 119, Bureau of Chemistry) has shown, that certain foods (tomato catsup) which are usually

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[1]Harrington—"Sodium Sulphite a Dangerous Food Preservative." Jour. of Infectious Diseases, Vol. 1, No. 2.

[2]Annette—"Lancet, 1899."

[3]Wesener and Teller—"Coal Tar Colors vs. So-called Vegetable and Animal Colors. (Lab. Compilation, Vol. 2, p. 470.) "For the past four years, the Columbus laboratories have been testing the physiological action of coal tar color by feeding experiments upon animals, and we believe it to be a thoroughly reliable means of determining the poisonous or non-poisonous properties of the color."

[4]Boyce, Medical Officer of Health, city of Liverpool. Report city of Liverpool, 1899, pp. 140-141.

considered by the manufacturer as the most difficult to preserve, can be preserved without preservatives by careful canning and as every housewife knows.

Whatever be our position in the above, it seems quite clear that under normal conditions the employment in food products of a preservative that may work injury to the public health should not be permitted.

SUMMARY.

I. Sodium Benzoate is absorbed, in not too large quantities, and enters the system proper of the animal.

II. Sodium Benzoate in (vitro) doses as low as 0.2 per cent (some instances as low as 0.1 per cent) seems to exert a measurable inhibitory effect on enzymic activity (directly or indirectly).

III. Sodium Benzoate in ordinary food products does not act as a complete preservative in dilutions below 2.0 per cent, and in some instances does not preserve even in this strength, although it may show a retarding influence in strengths under this.

IV. Milk containing as low as 0.1 per cent Benzoate of Soda seems injurious to the health of young animals, and a fair inference seems to be that it might in a measure at least be injurious to young persons. Larger amounts such as 0.2 per cent and 0.5 per cent show correspondingly greater deleterious effects.

## COMMERCIAL FEEDING STUFFS.

May 20, 1909.

*Hon. A. C. Bird, State Dairy and Food Commissioner, Lansing, Mich.:*

Dear Sir—I beg to submit herewith for your consideration results of analyses of commercial feeding stuffs for the year ending April 1st, 1909. In all there were analyzed one hundred fifty-four samples of feeding stuffs which have been licensed under the law and have, therefore, been enjoying legal sale in the State of Michigan during the period mentioned. Only those samples which bear a license are included in this report. A great many samples were analyzed in this connection which were sent in by inspectors because of uncertainty arising as to their meeting the requirements of the law. Some of these analyses resulted in an application for and the granting of a license to the manufacturer for that feed. Others, after analysis, were found to fall without the provisions of the law, consequently a great majority of the analyses of so-called unofficial samples of feeding stuffs are not mentioned in any way in this report.

In arranging the data in tabulated form, the analysis of the manufacturer is given first, labeled "Guaranteed"; that is, the manufacturer in his application for a license states the percentage of protein, crude fiber, nitrogen free extract and ether extract, which he maintains or guarantees the feed shall contain. The line below, marked, "Found" gives the result of analysis made in the laboratory, and these comparisons are made for the

benefit of feeders and should be an indication to them whether a feed is likely on the average to equal the manufacturers' guaranty.

It may not be out of place in this connection to refer again briefly, and for the information of feeders, to the terms used in these analyses. The law prescribes that the percentages of the Protein, Crude Fiber, Nitrogen-Free Extract, and Ether Extract contained in the feed shall appear upon the tag or sack accompanying the feed in question. A commercial feeding stuff is usually selected because of a high content of protein.

Protein is the most expensive and the most sought for ingredient of feeding stuffs. This is not because other constituents of a feeding stuff are not valuable, but largely because of the fact that the other factors in a feeding stuff are abundantly supplied by the ordinary roughage and feeds of lower commercial value which are obtained directly from nearly all Michigan farms. It is therefore usually uneconomical for the feeder to pay out money for a product which he is sufficiently producing on his own farm. But with the increase of dairying and stock raising, most feeders are obliged to buy one or more of the concentrated feeds, by which is meant generally those feeds with a high protein content, which he gives to his stock in addition to the produce which he has on his own farm, and by so doing, produces a more balanced ration for his stock. The first great essential in purchasing a feeding stuff is to select one with a *high content of protein.* The second, and which is by no means of minor importance, is the percentage of crude fiber which the feed contains.

Crude fiber is to protein what ordinary roughage material is to a concentrated feed. It is the woody or fibrous portion of the feed and represents in general that portion of the feed which has the least value for feeding purposes. The tendancy of crude fiber in a ration is to counteract the effect of the protein. In other words, a high percentage of crude fiber neutralizes the effect of a high percentage of protein.

A feeding stuff, therefore, is of greatest value when it contains a relatively *high percentage of protein* and at the same time a relatively *low percentage of crude fiber.* In selecting a feeding stuff upon the market then, a person will center his attention on the point of getting for the money invested as *high a content of protein* and at the same time as *low a content of crude fiber* as he may.

Nitrogen-free extract need not be of great concern in the purchase of a feeding stuff. The nitrogen-free extract and the ether extract will usually be properly adjusted if the protein and crude fiber are sufficiently balanced. The nitrogen-free extract is of course the starchy portion of the feed and the *ether extract* is the fatty or oily portion. They are included in the report to assist a feeder in balancing the ration.

It will be noticed in referring to the report that in many instances the manufacturer's guaranty and the laboratory analysis correspond exactly. This is because the manufacturer has based his guaranty upon the analysis of the feed after it reached the laboratory.

Very truly yours,

FLOYD W. ROBISON,

*State Analyst.*

TABULATED ANALYSIS OF COMMERCIAL FEED STUFFS (YEAR ENDING APRIL 1, 1909).

| License No. | Manufacturers and address. | Brand. | | Protein. Per cent. | Crude fiber. Per cent. | Nitrogen—Free extract. Per cent. | Ether extract. Per cent. |
|---|---|---|---|---|---|---|---|
| 201 | Commercial Milling Co., Detroit, Mich | Bran Feed | Guaranteed | 14.79 | 13.38 | 54 41 | 3.30 |
| | | | Found | 14.79 | 13.38 | 54.41 | 3.30 |
| 202 | Commercial Milling Co., Detroit, Mich | Fine Middlings Feed | Guaranteed | 15.84 | 3.30 | 67.02 | 3.70 |
| | | | Found | 15.84 | 3.30 | 67.02 | 3.70 |
| 203 | Commercial Milling Co., Detroit, Mich | Coarse Middlings Feed | Guaranteed | 17.06 | 7.41 | 59.39 | 4 83 |
| | | | Found | 17.06 | 7.41 | 59.39 | 4.83 |
| 204 | Commercial Milling Co., Detroit, Mich | Chop Feed | Guaranteed | 9.71 | 8.75 | 65.40 | 5.35 |
| | | | Found | 9.71 | 8.75 | 65 40 | 5.35 |
| 205 | The Beck Cereal Co., Detroit, Mich | Royal Corn and Oats Chop Feed | Guaranteed | 8.31 | 5.81 | | 5 10 |
| | | | Found | 9.36 | 7.40 | 63 12 | 5 18 |
| 206 | The Oliver Flour and Feed Co., Detroit | Noxemal Chop | Guaranteed | 14.00 | 15 00 | 53.00 | 8 00 |
| | | | Found | | | | |
| 207 | The Quaker Oats Co., Chicago, Ill | Maz-oil Corn Feed | Guaranteed | 9 50 | 2.00 | 80 00 | 1 40 |
| | | | Found | 7.44 | 1 55 | 84 83 | .77 |
| 208 | The Quaker Oats Co., Chicago, Ill | Zest Wheat Feed | Guaranteed | 11.00 | 3 00 | 75 00 | 1 40 |
| | | | Found | 12.00 | 4 22 | 69 11 | 4 02 |
| 209 | The Quaker Oats Co., Chicago, Ill | Victor Feed | Guaranteed | 7 50 | 12 00 | 62 00 | 3 00 |
| | | | Found | 7 52 | 9 47 | 66 23 | 4 25 |
| 210 | The Quaker Oats Co., Chicago, Ill | Schumacher Stock Feed | Guaranteed | 10 00 | 10 00 | 60 00 | 4 00 |
| | | | Found | 10.76 | 10 15 | 64 81 | 3 02 |
| 211 | The Quaker Oats Co., Chicago, Ill | Schumacher Scratching Grains | Guaranteed | 10 50 | 4 50 | 60 50 | 3 00 |
| | | | Found | 10 15 | 3 75 | 70 31 | 3 10 |
| 212 | Cronenwett & Son, Detroit, Mich | Manhatten Food | Guaranteed | 10 68 | 2 83 | 64 30 | 4 30 |
| | | | Found | 10.68 | 2 83 | 64 30 | 4 30 |
| 213 | Cronenwett & Son, Detroit, Mich | Manhatten Poultry Food | Guaranteed | 5.29 | 5 35 | 70 62 | 4 05 |
| | | | Found | 5.29 | 5 35 | 70 62 | 4.05 |
| 214 | Hygienic Food Co., Battle Creek, Mich | Mapl-Flake Feed | Guaranteed | 12 00 | 6 00 | 66 50 | |
| | | | Found | 13.05 | 3.05 | 73 36 | 1 59 |
| 215 | Midland Linseed Co., Minneapolis, Minn | Old Process Ground Linseed Cake | Guaranteed | 32.00 | 10 00 | 38 00 | 6.00 |
| | | | Found | 35.53 | 11.13 | 30 48 | 9.40 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 216 | Continental Cereal Co, Peoria, Ill | Continental Gluten Feed | Guaranteed. | 33.00 | 8.50 | 5.84 | 14.00 |
| | | | Found | | | | |
| 217 | Mutual Supply Co., Jackson, Mich | Mutual Brand Cotton Seed Meal | Guaranteed | 38 to 41 | Not exceed 10 | | 8 to 9 |
| | | | Found | 40.95 | 7.30 | 29.05 | 8.82 |
| 218 | Saginaw Milling Co., Saginaw, Mich | Ogemaw A. A. Chick Feed | Guaranteed | 15.84 | 4.97 | 64.09 | 2.40 |
| | | | Found | 15.84 | 4.97 | 64.09 | 2.40 |
| 219 | Saginaw Milling Co., Saginaw, Mich | Wolverine Scratch Feed | Guaranteed | 12.25 | 4.15 | 68.93 | 2.95 |
| | | | Found | 12.25 | 4.15 | 68.73 | 2.95 |
| 220 | Saginaw Milling Co., Saginaw, Mich | Red Hen Scratch Feed | Guaranteed | 13.21 | 5.42 | 65.14 | 3.20 |
| | | | Found | 13.21 | 5.42 | 65.14 | 3.20 |
| 221 | Saginaw Milling Co., Saginaw, Mich | Red Hen Chick Starter | Guaranteed | 14.87 | 5.15 | 65.47 | 2.05 |
| | | | Found | 14.87 | 5.15 | 65.47 | 2.05 |
| 222 | Saginaw Milling Co., Saginaw, Mich | Nutro Horse Feed | Guaranteed | 12.68 | 7.05 | 65.01 | 3.52 |
| | | | Found | 12.68 | 7.05 | 65.01 | 3.52 |
| 223 | Saginaw Milling Co., Saginaw, Mich | XXXX Stock Feed | Guaranteed | 9.36 | 6.87 | 68.14 | 2.97 |
| | | | Found | 9.36 | 6.87 | 68.14 | 2.97 |
| 224 | Saginaw Milling Co., Saginaw, Mich | Samico No. 1 Chop | Guaranteed | 8.84 | 9.67 | 66.53 | 2.55 |
| | | | Found | 8.84 | 9.67 | 66.53 | 2.55 |
| 225 | Corn Products Mfg. Co., Chicago, Ill | Buffalo Gluten Feed | Guaranteed | 23 to 25 | 8.50 | 53.00 | 2.50 |
| | | | Found | 24.41 | 8.55 | 54.05 | 2.60 |
| 226 | The W. T. Rawliegh Medical Co., Freeport, Ill | Rawleigh's Imperial Stock Food | Guaranteed | 13.30 | 12.00 | 42.30 | 8.60 |
| | | | Found | 12.95 | 11.02 | 44.47 | 7.52 |
| | | | Found | 13.65 | 11.22 | 43.47 | 6.97 |
| 227 | The W. T. Rawleigh Medical Co., Freeport, Ill | Rawleigh's Poultry Powder | Guaranteed | 15.8 | 24.1 | 23.9 | 8.4 |
| | | | Found | 14.35 | | | 5.70 |
| | | | Found | 14.79 | | | 6.05 |
| 228 | Hirst & Begley Linseed Co., Chicago, Ill | Ground Linseed Cake | Guaranteed | 32 to 36 | 11.00 | 42.00 | 8.00 |
| | | | Found | 33.69 | 12.70 | 31.73 | 9.83 |
| 229 | Chicago White Lead & Oil Co., Chicago, Ill | King Ground Linseed Oil Cake | Guaranteed | 32 to 34 | 11.00 | 42.00 | 6.50 |
| | | | Found | 33.25 | 8.19 | 35.92 | 8.80 |
| 230 | The Metzger Seed & Oil Co., Toledo, Ohio | Oil Meal | Guaranteed | 30 to 36 | 2 to 10 | | |
| | | | Found | 35.79 | 7.33 | 37.49 | 6.83 |
| 231 | The Huron Milling Co., Harbor Beach, Mich | Jenks Gluten Feed | Guaranteed | 25.00 | 4.50 | 50.00 | .075 |
| | | | Found | | | | |
| 232 | The Sherwin-Williams Co., Cleveland, Ohio | Linseed Meal | Guaranteed | 33.00 | 8.00 | | |
| | | | Found | 32.11 | 8.28 | 37.22 | 8.80 |

TABULATED ANALYSIS OF COMMERCIAL FEED STUFFS.—*Continued.*

| License No. | Manufacturers and address. | Brand. | | Protein. Per cent. | Crude fiber. Per cent. | Nitrogen-Free extract. Per cent. | Ether extract. Per cent. |
|---|---|---|---|---|---|---|---|
| 233 | The Armour Fertilizer Works, Chicago, Ill | Blood Meal | Guaranteed | 80.00 | | | |
| | | | Found | 83.12 | | | .60 |
| 234 | The Armour Fertilizer Works, Chicago, Ill | Feeding Tankage | Guaranteed | 40.00 | | | 10.00 |
| | | | Found | 38.15 | | | 8.00 |
| 235 | The Armour Fertilizer Works, Chicago, Ill | Beef Scraps | Guaranteed | 55.00 | | | 12.00 |
| | | | Found | 60.02 | | | 18.14 |
| 236 | The Armour Fertilizer Works, Chicago, Ill | Meat Meal | Guaranteed | 50.00 | | | 10.00 |
| | | | Found | 62.30 | | | 13.93 |
| | | | Found | 58.45 | | | 13.35 |
| 237 | American Milling Co., Chicago, Ill | Sucerne Horse Feed | Guaranteed | 10.00 | 13.50 | 50.00 | 3.00 |
| | | | Found | 12.51 | 13.22 | 57.31 | 4.60 |
| 238 | American Milling Co., Chicago, Ill | Sucrene Dairy Feed | Guaranteed | 16.50 | 12.00 | 48.54 | 3.50 |
| | | | Found | 20.82 | 11.55 | 43.53 | 3.55 |
| 239 | American Cotton Oil Co., New York, N. Y. | Choice Cotton Seed Meal | Guaranteed | 41.00 | 10.50 | 6.50 | |
| | | | Found | 39.81 | 9.20 | 27.94 | 10.14 |
| 240 | W. W. & O. L. Hunter, Chicago, Ill | Jersey Mixed Feed | Guaranteed | 10 to 12.05 | 14 to 16.05 | | 2 to 3.20 |
| | | | Found | | | | |
| 241 | International Stock Food Co., Minneapolis, Minn | International Stock Food | Guaranteed | None claimed | None claimed | | None claimed |
| | | | Found | | | | |
| 242 | International Stock Food Co., Minneapolis, Minn | International Poultry Food | Guaranteed | None claimed | None claimed | | None claimed |
| | | | Found | | | | |
| 243 | The H-O Company, Buffalo, N. Y. | H-O Poultry Food | Guaranteed | 17.00 | 10.00 | | 5.50 |
| | | | Found | 17.41 | 5.90 | 60.50 | 3.60 |
| 244 | Clinton Sugar Refining Co., Clinton, Iowa | Clinton Gluten Feed | Guaranteed | 23.00 | 7.50 | 55.00 | 3.00 |
| | | | Found | 24.06 | 6.77 | 56.13 | 5.15 |
| 245 | The Sleepy Eye Milling Co., Sleepy Eye, Minn | Sleepy Eye Chick Feed | Guaranteed | 12.10 | 1.90 | 71.00 | 1.80 |
| | | | Found | 12.08 | 2.65 | 69.52 | 1.92 |
| 246 | O'Brien Varnish Co., South Bend, Ind | Screw Press Old Process Linseed Oil Meal | Guaranteed | 35.1 | 10.70 | 43.20 | 8.80 |
| | | | Found | 31.85 | 7.73 | 35.10 | 11.52 |
| 247 | The Corno Mills Co., East St. Louis, Ill | Nutro Chick Feed | Guaranteed | 10.00 | 3.40 | 10.00 | 3.50 |
| | | | Found | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 248 | The Corno Mills Co., East St. Louis, Ill | Corno Chick Feed | Guaranteed | 10.00 | 3.40 | 70.00 | 3.50 |
| | | | Found | | | | |
| 249 | The Corno Mills Co., East St. Louis, Ill | Nutro Hen Feed | Guaranteed | 10.00 | 2.30 | 70.00 | 3.70 |
| | | | Found | | | | |
| 250 | The Corno Mills Co., East St. Louis, Ill | Corno Hen Feed | Guaranteed | 10.00 | 2.30 | 70.00 | 3.70 |
| | | | Found | | | | |
| 251 | W. J. Byrnes & Co., Chicago, Ill | Royal Poultry Food | Guaranteed | 10.50 | 4.20 | | 3.00 |
| | | | Found | 10.06 | 4.17 | 67.08 | 2.55 |
| 252 | W. J. Byrnes & Co., Chicago, Ill | Daisy Chick Food | Guaranteed | 10.50 | 4.20 | | 3.00 |
| | | | Found | 11.46 | 3.52 | 66.83 | 2.37 |
| 253 | Cancelled, see 269. | | | | | | |
| 254 | Christian Briesch & Co., Lansing, Mich | Plymouth Rock Scratch Feed | Guaranteed | 11.02 | 7.30 | 65.50 | 2.30 |
| | | | Found | 11.02 | 7.30 | 65.50 | 2.30 |
| 255 | Battle Creek Health Stock Food Co., Battle Creek, Mich | Battle Creek Health Stock Food | Guaranteed | 29.31 | 8.38 | 36.23 | 5.14 |
| | | | Found | 29.31 | 8.38 | 36.23 | 5.14 |
| 256 | Daily Specialty Mfg. Co., Detroit, Mich | Daily's Ideal Horse and Stock Tonic | Guaranteed | 16.71 | 8.28 | 35.96 | 3.88 |
| | | | Found | 16.71 | 8.28 | 35.96 | 3.88 |
| 257 | David Stott, Detroit, Mich | Winner Chop Feed | Guaranteed | 8.05 | 4.95 | 70.40 | 4.15 |
| | | | Found | 8.05 | 4.95 | 70.40 | 4.15 |
| 258 | Detroit Milling Co., Detroit, Mich | Adrian Chop Feed | Guaranteed | 9.80 | 9.45 | 66.24 | 4.18 |
| | | | Found | 9.80 | 9.45 | 66.24 | 4.18 |
| 259 | McMorran Milling Co., Port Huron, Mich | No. 2, Chop | Guaranteed | 7.18 | 15.48 | 61.33 | 3.19 |
| | | | Found | 7.18 | 15.48 | 61.33 | 3.19 |
| 260 | C. H. Kimball & Son, Port Huron, Mich | Star Chop Feed | Guaranteed | 8.84 | 10.35 | 64.94 | 3.63 |
| | | | Found | 8.84 | 10.35 | 64.94 | 3.63 |
| 261 | Michigan Cereal Co., Port Huron, Mich | Oat Bran | Guaranteed | 14.61 | 20.26 | 48.21 | 5.58 |
| | | | Found | 14.61 | 20.26 | 48.21 | 5.58 |
| 262 | Michigan Cereal Co., Port Huron, Mich | Pea Bran | Guaranteed | 17.15 | 35.98 | 35.54 | 1.45 |
| | | | Found | 17.15 | 35.98 | 35.54 | 1.45 |
| 263 | Milwaukee Gains & Feed Co., Milwaukee, Wis | XXX Dairy Feed | Guaranteed | 16.00 | 10.00 | | 2.50 |
| | | | Found | 14.22 | 8.55 | 55.98 | 2.40 |
| | | | Found | 13.61 | 8.62 | 55.21 | 1.84 |
| 264 | Mayflower Mills, Fort Wayne, Ind | Mayflower Oil Meal | Guaranteed | 22.00 | 7.00 | 39.00 | 8.00 |
| | | | Found | 30.71 | 8.00 | 41.48 | 3.82 |
| 265 | Huron Milling Co., Harbor Beach, Mich | Mixed Feed | Guaranteed | 12.18 | 5.85 | 68.32 | 4.60 |
| | | | Found | | | | |

TABULATED ANALYSIS OF COMMERCIAL FEED STUFFS.—*Continued.*

| License No. | Manufacturers and address. | Brand. | | Protein. Per cent. | Crude fiber. Per cent. | Nitrogen—Free extract. Per cent. | Ether extract. Per cent. |
|---|---|---|---|---|---|---|---|
| 266 | J. E. Marvin, Muskegon, Mich | Climax Scratch Feed | Guaranteed | 12.34 | 9.28 | 60.30 | 3.00 |
| | | | Found | 12.34 | 9.28 | 60.30 | 3.40 |
| 267 | Great Western Cereal Co., Chicago, Ill | Dairy Daisy Feed | Guaranteed | 14 to 16 | 9.00 | 49.00 | 3 to 4 |
| | | | Found | | | | |
| 268 | North West Mills Co., Winona, Minn | Sugarota | Guaranteed | 18.00 | 12.40 | 50.00 | 4.50 |
| | | | Found | 18.73 | 25.13 | 38.40 | 2.49 |
| 269 | The Millers Products Co., Chicago, Ill | Cerecut | Guaranteed | 15.00 | 15.50 | 49.00 | 8.00 |
| | | | Found | 13.74 | 10.87 | 59.07 | 1.45 |
| | | | Found | 15.75 | 22.23 | 36.75 | 11.88 |
| 270 | The Oliver Flour & Feed Co., Detroit, Mich | Noxemal Chicken Feed | Guaranteed | 10.41 | 8.38 | 67.19 | 3.18 |
| | | | Found | 10.41 | 8.38 | 67.19 | 3.18 |
| 271 | Reliance Milling Co., Vassar, Mich | Special Feed | Guaranteed | 9.89 | 5.60 | 71.94 | 2.53 |
| | | | Found | 9.89 | 5.60 | 71.94 | 2.53 |
| 272 | Illinois Seed Co., Chicago, Ill | Monitor Brand Chick Feed | Guaranteed | 10.15 | 3.25 | 73.02 | 3.03 |
| | | | Found | 8.49 | 4.05 | 62.38 | 2.42 |
| | | | Found | 10.15 | 3.25 | 73.02 | 3.03 |
| 273 | Portland Milling Co., Portland, Mich | Champion Mixed Feed | Guaranteed | 15.66 | 11.48 | 53.51 | 3.95 |
| | | | Found | 15.66 | 11.48 | 53.51 | 3.95 |
| 274 | Scheuren & Mok, Detroit, Mich | Chop Feed | Guaranteed | 10.59 | 6.75 | 64.57 | 4.15 |
| | | | Found | 10.59 | 6.75 | 64.57 | 4.15 |
| 275 | W. E. Merahon Co., Kalamazoo, Mich | Corn Bran | Guaranteed | 9.63 | 9.70 | 63.52 | 6.93 |
| | | | Found | 9.63 | 9.70 | 63.52 | 6.93 |
| 276 | Alma Grain & Lumber Co., Alma, Mich | Alma Molasses Stock Food | Guaranteed | 12.51 | 12.33 | 55.84 | 3.60 |
| | | | Found | 12.51 | 12.33 | 55.84 | 3.60 |
| 277 | J. P. Burroughs, Flint, Mich | Burroughs Mixed Feed | Guaranteed | 17.59 | 8.10 | 58.26 | 3.28 |
| | | | Found | | | | |
| 278 | Brand & Hardin, Saginaw, Mich | Corn and Oats Feed | Guaranteed | 10.06 | 5.80 | 68.82 | 3.55 |
| | | | Found | 10.06 | 5.80 | 68.82 | 3.55 |
| 279 | Alfred R. Eales, Boston, Mass | Molassine Meal | Guaranteed | 8.75 | 7.05 | 56.38 | .63 |
| | | | Found | 8.75 | 7.05 | 56.38 | .63 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 280 | Carl C. Wright, Owosso, Mich | Wright's Chick Feed | Guaranteed... | 9.89 | 5.10 | 64.17 | 2.78 |
| | | | Found..... | 9.89 | 5.10 | 64.17 | 2.78 |
| 281 | Carl C. Wright, Owosso, Mich | Wright's Mixture | Guaranteed... | 11.28 | 6.20 | 57.51 | 3.75 |
| | | | Found..... | 11.28 | 6.20 | 57.51 | 3.75 |
| 282 | Mitchell Brothers, Detroit, Mich | Chop Feed | Guaranteed... | 11.03 | 9.58 | 63.33 | 2.80 |
| | | | Found..... | 11.03 | 9.58 | 63.33 | 2.80 |
| 283 | M. S. Hunt, St. Johns, Mich | Mixed Feed | Guaranteed... | 13.21 | 10.73 | 57.69 | 4.15 |
| | | | Found..... | 13.21 | 10.73 | 57.69 | 4.15 |
| 284 | The Chatfield Milling Co., Bay City, Mich | Plymouth Rock Poultry Food | Guaranteed... | 9.28 | 4.78 | 62.87 | 3.90 |
| | | | Found..... | 9.28 | 4.78 | 62.87 | 3.90 |
| 285 | Bromfield & Colvin, Bay City, Mich | Bromfield & Colvin Egg Producer | Guaranteed... | 19.34 | 7.40 | 52.42 | 5.00 |
| | | | Found..... | 19.34 | 7.40 | 52.42 | 5.00 |
| 286 | The Postum Cereal Co., Battle Creek, Mich | Flaked Corn | Guaranteed... | 9.62 | 1.00 | 81.83 | 1.61 |
| | | | Found..... | | | | |
| 287 | Western Grain Products Co., Hammond, Ind | Hammond Dairy Feed | Guaranteed... | 17.00 | 9.00 | ..... | 3.00 |
| | | | Found..... | 18.38 | 13.48 | 43.85 | 6.75 |
| | | | Found..... | 17.41 | 11.85 | 50.53 | 3.30 |
| 288 | The Hunter Bros. Milling Co., St. Louis, Mo | Mixed Feed or Bran and Middlings Mixed... | Guaranteed... | 17.15 | 10.40 | 54.61 | 3.78 |
| | | | Found..... | 17.15 | 10.40 | 54.61 | 3.78 |
| 289 | The Hunter Bros. Milling Co., St. Louis, Mo | Cotton Seed Meal | Guaranteed... | 42.52 | 10.98 | 24.71 | 9.35 |
| | | | Found..... | 42.52 | 10.98 | 24.71 | 9.35 |
| 290 | Robert Hyslop & Son, Ovid, Mich | Chop | Guaranteed... | 10.59 | 6.98 | 66.48 | 3.85 |
| | | | Found..... | 10.59 | 6.98 | 66.48 | 3.85 |
| 291 | Charles A. Krause Milling Co., Milwaukee, Wis | Badger Stock Feed | Guaranteed... | 10 to 12 | 10 to 12 | 65.00 | 4 to 6 |
| | | | Found..... | 18.11 | 9.42 | 54.62 | 4.82 |
| | | | Found..... | 16.80 | 19.73 | 46.42 | 6.03 |
| 292 | F. Thoman Milling Co., Lansing, Mich | Corn & Oats Feed (Thomico) | Guaranteed... | 9.98 | 5.63 | 70.39 | 4.35 |
| | | | Found..... | 9.98 | 5.63 | 70.39 | 4.35 |
| 293 | Malta Vita Pure Food Co., Battle Creek, Mich | By-Products of Malta Vita and Corn Flakes.. | Guaranteed.. | 8.84 | 3.38 | 74.58 | 2.30 |
| | | | Found..... | 8.84 | 3.38 | 74.58 | 2.30 |
| 294 | Scott Veterinary Remedy Co., Traverse City, Mich | Scott's Stock Food | Guaranteed... | 16.63 | 14.65 | 38.04 | 9.48 |
| | | | Found..... | 16.63 | 14.65 | 38.04 | 9.48 |
| 295 | Scott Veterinary Remedy Co., Traverse City, Mich | Scott's Poultry Food | Guaranteed... | 18.11 | 9.95 | 58.83 | 14.40 |
| | | | Found..... | 18.11 | 9.95 | 58.83 | 14.40 |
| 296 | H. P. Boehm, Benton Harbor, Mich | Star Chicken Grain | Guaranteed... | 8.66 | 3.45 | 71.17 | 3.45 |
| | | | Found..... | 8.66 | 3.45 | 71.17 | 3.45 |

TABULATED ANALYSIS OF COMMERCIAL FEED STUFFS.—*Continued.*

| License No. | Manufacturers and address. | Brand. | | Protein. Per cent. | Crude fiber. Per cent. | Nitrogen—Free extract. Per cent. | Ether extract. Per cent. |
|---|---|---|---|---|---|---|---|
| 207 | C. F. Beach, Battle Creek, Mich | Beach's Protein Stock Food | Guaranteed | 11.38 | 14.75 | 60.38 | 2.95 |
| | | | Found | 11.38 | 14.75 | 60.38 | 2.95 |
| 208 | Postum Cereal Co., Ltd., Battle Creek, Mich | H. & C. Feed | Guaranteed | 8.58 | 9.58 | 73.73 | 1.50 |
| | | | Found | 8.58 | 9.58 | 73.73 | 1.50 |
| 299 | American Milling Co., Philadelphia, Pa | Sucrene Horse & Mule Feed | Guaranteed | 10.00 | 13.50 | 50.00 | 3.00 |
| | | | Found | 10.94 | 9.28 | 60.21 | 2.52 |
| 300 | Edwards & Loomis Co., Chicago, Ill | Red Comb Fine Chick Feed | Guaranteed | 9.80 | 2.43 | 69.33 | 2.65 |
| | | | Found | 9.80 | 2.43 | 69.33 | 2.65 |
| 301 | Edwards & Loomis Co., Chicago, Ill | Red Comb Coarse Chick Feed | Guaranteed | 10.15 | 3.25 | 69.02 | 3.18 |
| | | | Found | 10.15 | 3.25 | 69.02 | 3.18 |
| 302 | Edwards & Loomis Co., Chicago, Ill | Red Comb Meat Mash | Guaranteed | 19.34 | 7.53 | 48.23 | 5.00 |
| | | | Found | 19.34 | 7.53 | 48.23 | 5.00 |
| 303 | Edwards & Loomis Co., Chicago, Ill | Cackle Brand Poultry Food | Guaranteed | 9.40 | 3.90 | ..... | 3.70 |
| | | | Found | 10.15 | 4.45 | 60.27 | 3.30 |
| 304 | Edwards & Loomis Co., Chicago, Ill | Red Comb Poultry Feed | Guaranteed | 11.90 | 4.00 | 62.30 | 3.40 |
| | | | Found | 11.90 | 4.00 | 62.30 | 3.40 |
| 305 | Parsons & Hobart, Detroit, Mich | Parsons & Hobart's Chop Feed | Guaranteed | 8.93 | 4.70 | 73.18 | 3.73 |
| | | | Found | 8.93 | 4.70 | 73.18 | 3.73 |
| 306 | The Shredded Wheat Co., Niagara Falls, N. Y. | Shredded Wheat Waste | Guaranteed | 9.82 | 2.94 | 77.97 | 1.53 |
| | | | Found | 10.50 | 2.60 | 77.97 | 2.01 |
| | | | Found | 10.85 | 3.07 | 74.02 | 1.32 |
| 307 | The Albert Dickinson Co., Chicago, Ill | Globe Scratch Feed | Guaranteed | 10.50 | 5.00 | 60 to 68 | 3.00 |
| | | | Found | 9.62 | 3.03 | 65.15 | 2.75 |
| 308 | The Albert Dickinson Co., Chicago, Ill | Pine Tree Scratch Feed | Guaranteed | 10.50 | 5.00 | 60 to 68 | 3.00 |
| | | | Found | 9.27 | 2.70 | 68.09 | 2.73 |
| 309 | The Albert Dickinson Co., Chicago, Ill | Crescent Chick Feed | Guaranteed | 10.50 | 5.00 | 60 to 68 | 3.00 |
| | | | Found | 9.19 | 3.30 | 64.27 | 3.19 |
| 310 | The Albert Dickinson Co., Chicago, Ill | Sun Chick Starter | Guaranteed | 10.50 | 5.00 | 60 to 68 | 3.00 |
| | | | Found | 12.51 | 3.95 | 63.40 | 1.80 |
| 311 | The Albert Dickinson Co., Chicago, Ill | King Pigeon Feed | Guaranteed | 10.50 | 5.00 | 60 to 68 | 3.00 |
| | | | Found | 9.88 | 4.20 | 65.06 | 2.90 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 312 | The Albert Dickinson Co., Chicago, Ill | Colonial Developing Feed | Guaranteed | 10.50 | 5.00 | 60 to 68 | 3.00 |
| | | | Found | | | | |
| 313 | The Albert Dickinson Co., Chicago, Ill | Queen Poultry Mash | Guaranteed | 10.50 | 7.00 | 60 to 68 | 3.00 |
| | | | Found | 12.42 | 6.17 | 61.01 | 1.50 |
| 314 | The Sugarine Co., Chicago, Ill | Sugarine Dairy Feed | Guaranteed | 16.50 | 12.00 | 48.54 | 3.50 |
| | | | Found | 16.10 | 9.35 | 48.13 | 3.45 |
| 315 | The Sugarine Co., Chicago, Ill | Sugarine Horse Feed | Guaranteed | 10.00 | 13.50 | 50.00 | 3.00 |
| | | | Found | 13.39 | 7.93 | 51.40 | 2.72 |
| 316 | The International Sugar Feed Co., Minneapolis, Minn | International Sugared Feed for Milk Cows | Guaranteed | 16.50 | 12.50 | 50.40 | 3.50 |
| | | | Found | 18.73 | 10.70 | 46.72 | 4.60 |
| 317 | The International Sugar Feed Co., Minneapolis, Minn | International Sugared Feed (for horses) | Guaranteed | 12.50 | 12.50 | 56.00 | 5.00 |
| | | | Found | 12.78 | 8.50 | 56.79 | 3.53 |
| 318 | Joseph Schlitz Brewing Co., Milwaukee, Wis | Schlitz Purity Dried Grains | Guaranteed | 25.02 | 16.24 | 46.27 | 6.40 |
| | | | Found | 31.81 | 12.80 | 38.84 | 7.35 |
| 319 | Douglas & Company, Cedar Rapids, Iowa | Cedar Rapids Gluten Feed | Guaranteed | 23.00 | 7.00 | | |
| | | | Found | 22.14 | 6.50 | 60.49 | 2.60 |
| 320 | Wykes & Co., Distributors, Grand Rapids, Mich | YX Old Process Linseed Meal | Guaranteed | 30 to 36 | 2 to 8 | 38 to 42 | 6 to 9 |
| | | | Found | 29.84 | 8.62 | 39.82 | 8.40 |
| 321 | Humphreys, Godwin & Co., Memphis, Tenn | Dixie Brand Cotton Seed Meal | Guaranteed | 38 to 41 | | 6 to 6.5 | |
| | | | Found | | | | |
| 322 | Toasted Corn Flake Co., Battle Creek, Mich | Wet Feed | Guaranteed | 6.40 | 1.82 | 11.89 | .53 |
| | | | Found | 6.40 | 1.82 | 11.89 | .53 |
| 323 | Michigan Cereal Co., Port Huron, Mich | Feeding Oat Meal | Guaranteed | 16.89 | 2.42 | 62.31 | 4.62 |
| | | | Found | 16.89 | 2.42 | 62.31 | 4.62 |
| 324 | H. E. Bridges & Co., Memphis, Tenn | Cotton Seed Meal | Guaranteed | 38.5 to 41 | 9.00 | 6 50 | |
| | | | Found | 42.35 | 7.82 | 28.80 | 6.77 |
| | | | Found | 35 90 | 13.05 | 26.57 | 10.90 |
| 325 | Toasted Corn Flake Co., Battle Creek, Mich | Dry Feed | Guaranteed | 7 26 | .25 | 84.12 | .95 |
| | | | Found | 7 26 | .25 | 84.12 | 95 |
| 326 | The J. E. Bartlett Co., Jackson, Mich | Cuddomeal | Guaranteed | 15 83 | 33.00 | 33.44 | 5.68 |
| | | | Found | 15.83 | 33.00 | 33.44 | 5.68 |
| 327 | The Great Western Cereal Co., Chicago, Ill | Gregson Calf Meal | Guaranteed | 25.00 | 5.00 | 48.00 | 5.00 |
| | | | Found | 24.76 | .80 | 51 81 | 8.10 |
| | | | Found | 21.87 | 5.47 | 50.20 | 6.65 |
| 328 | The Great Western Cereal Co., Chicago, Ill | Boss Chop Feed | Guaranteed | 8 50 | 11 00 | 49.00 | 3.50 |
| | | | Found | 7.17 | 12.58 | 60.45 | 4 80 |

TABULATED ANALYSIS OF COMMERCIAL FEED STUFFS.—*Concluded.*

| License No. | Manufacturers and address. | Brand. | | Protein. Per cent. | Crude fiber. Per cent. | Nitrogen-Free extract. Per cent. | Ether extract. Per cent. |
|---|---|---|---|---|---|---|---|
| 329 | Henry Miller, Dealer, Lansing, Mich | Acme Stock Food | Guaranteed | 19.07 | 5.67 | 45.57 | 3.15 |
| | | | Found | | | | |
| 330 | H. J. Hasenwinkle Co., Memphis, Tenn | Prize Cotton Seed Meal | Guaranteed | 22.00 | 28.00 | 24.00 | 5.00 |
| | | | Found | 17.59 | 24.67 | 39.90 | 5.09 |
| 331 | The Quaker Oats Co., Chicago, Ill | Schumacher Calf Meal | Guaranteed | 19.00 | 3.00 | 54.00 | 8.00 |
| | | | Found | 17.68 | 1.60 | 68.99 | 7.63 |
| 332 | Fairfield & Kolvoord, Allegan, Mich | XXXX Feed | Guaranteed | 9.19 | 4.65 | 68.81 | 4.00 |
| | | | Found | 9.19 | 4.65 | 68.81 | 4.00 |
| 333 | Swift & Company, Chicago, Ill | Beef Scraps | Guaranteed | 55.00 | | | 8.00 |
| | | | Found | 58.54 | | | 16.53 |
| 334 | Swift & Company, Chicago, Ill | Digester Tankage | Guaranteed | 60.00 | | | 8.00 |
| | | | Found | | | | |
| 335 | Swift & Company, Chicago, Ill | Blood Meal | Guaranteed | 87.00 | | | |
| | | | Found | 82.16 | | | .38 |
| 336 | Ajax Milling & Feed Co., New York and Buffalo | Ajax Flakes | Guaranteed | 31 to 33 | 12 to 14 | 30 to 40 | 12.00 |
| | | | Found | | | | |
| 337 | The Illinois Seed Co., Chicago, Ill | Phoenix Brand Poultry Feed | Guaranteed | 9.61 | 2.95 | 62.80 | 2.72 |
| | | | Found | 9.61 | 2.95 | 62.80 | 2.72 |
| 338 | M. C. Peters Mill Co., Omaha, Neb | Peters' June Pasture Dairy Feed | Guaranteed | 12.00 | 26.00 | | 1.00 |
| | | | Found | | | | |
| 339 | M. C. Peters Mill Co., Omaha, Neb | Peters' Arab Horse Feed | Guaranteed | 10.00 | 11.50 | | 3.00 |
| | | | Found | | | | |
| 340 | M. C. Peters Mill Co., Omaha, Neb | Peters' Alfal-Fat Sugar Meal | Guaranteed | 11.00 | 22.00 | | 1.50 |
| | | | Found | | | | |
| 341 | Amendt Milling Co., Monroe, Mich | "Feed" | Guaranteed | 9.10 | 5.90 | 69.93 | 3.32 |
| | | | Found | 9.10 | 5.90 | 69.93 | 3.32 |
| 342 | Darling & Company, Chicago, Ill | Darling's Beef Scraps | Guaranteed | 55.00 | 3.00 | 8.80 | 5.00 |
| | | | Found | 57.92 | | | 9.55 |
| | Peru Milling Co., Peru, Ill | Famous Feed | Guaranteed | | | | |
| | | | Found | 7.09 | 9.18 | 65.94 | 2.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Peru Milling Co., Peru, Ill | Gold Medal Poultry Food | Guaranteed | | | | |
| | | Found | 9.86 | 2.25 | 68.76 | 2.80 |
| Peru Milling Co., Peru, Ill | Gold Medal Chick Food | Guaranteed | | | | |
| | | Found | 8.92 | 2.50 | 63.76 | 1.04 |
| Ralston Purina Company, St. Louis, Mo | Purina Mill Feed | Guaranteed | | | | |
| | | Found | | | | |
| Illinois Feed Mills, St. Louis, Mo | Feed-Well Mill Feed | Guaranteed | | | | |
| | | Found | | | | |
| J. P. Burroughs & Son, Flint, Mich | Burroughs Chop Feed | Guaranteed | | | | |
| | | Found | | | | |
| Valley City Milling Co., Grand Rapids, Mich | No. 1 Fine Ground Feed | Guaranteed | 10.06 | 4.47 | 66.56 | 5.02 |
| | | Found | 10.06 | 4.47 | 66.56 | 5.02 |
| Roberts Cotton Oil Co., Cairo, Ill | Cotton Seed Meal | Guaranteed | | | | |
| | | Found | 41.74 | 9.25 | 26.89 | 9.43 |
| American Linseed Co., Chicago, Ill | Wright & Hill Brand Linseed Meal | Guaranteed | | | | |
| | | Found | | | | |
| American Linseed Co., Chicago, Ill | Old Process Oil Meal | Guaranteed | 32–36 | 5.5–7 | 5–7 | |
| | | Found | 35.70 | 6.84 | 37.12 | 5.97 |
| J. W. Barwell, Waukegan, Ill | Blatchford's Calf Meal | Guaranteed | 23 to 25 | Not more than 5 | 46 to 50 | 4.5 to 5 |
| | | Found | | | | |
| S. P. Davis, Little Rock, Ark | Good Luck Brand Cotton Seed Meal | Guaranteed | 38 to 41 | 5 to 8 | 6 to 6.5 | 5 to 7.5 |
| | | Found | | | | |
| Chas. R. Lull, Milwaukee, Wis | Ground Flax Flakes | Guaranteed | | | | |
| | | Found | | | | |

NOTE.—It will be noticed that several of the guaranteed analyses correspond exactly with the found analyses. This is caused by the fact that the laboratory analysis preceded the manufacturer's guaranty and was the basis for such guaranty.

## CITY MILK SUPPLY.

During the last two years, the Department has been gradually extending its work along the lines of inspection of milk supplied to the retail trade. The funds of the Department provide for a very limited inspection, but enough has been done to demonstrate the exceeding great need of closer and more thorough inspection of milk retailed in cities. We have had in view in this study more particularly the sanitary quality of the milk, and have paid more attention to the degree of cleanliness than we have to the actual food value of the milk as shown by a chemical analysis. We have determined in all instances the percentage of solids, the percentage of milk fat, and have observed in addition to this the temperature at which the milk is retailed, whether it is packed in ice in the retailer's wagon and its general characteristics regarding flavor and odor, its comparative freedom from sediment or dirt, the condition of the curd upon fermentation and the rapidity with which the milk coagulated when submitted in the laboratory to a temperature of 98½°F. In the city of Lansing, where we had special laboratory facilities, we have determined from time to time the germ content per cubic centimeters of the milk and the development of gas due to gas producing organisms in the milk.

It seems to be quite well understood that the period of highest mortality among infants especially is during the heated summer months of July, August and September, and the prevalence of digestive or bowel disturbances is much more marked during these months than at any other time of the year, and there seems to be much reason for assuming that the milk sold during this period is in a considerable degree responsible for this increased death rate.

It is quite generally conceded that the two most potent factors for fighting this condition, applied especially to milk, are extreme cleanliness and low temperature. This study of the milk in these cities has been undertaken with the purpose of revealing something of the real condition of the ordinary milk that is retailed in cities, and not being content with a single observation of any one particular dairyman's product, we stationed these branch testing laboratories in the different cities mentioned, and continuous observations of the milk supply were made as frequently as facilities would permit during the entire ten weeks between July 1st and September 15th.

The method of procedure in the inspection of this milk was as follows: The inspector would go to the milk wagon and take a sample of milk as if purchasing it as a customer in the ordinary way. At that time he would enquire the age of the milk, or in other words, what time had elapsed since the product had been milked. He would at the same time, by means of his thermometer carried with him, determine the temperature at which the milk was being sold and observe likewise the presence or absence of ice for refrigeration purposes in the wagon. The milk would then be capped and delivered to the laboratory where its specific gravity was immediately taken by means of the lactometer and the percentage of milk fat and total solid matter determined. A small clean bottle

was then partially filled, covered loosely and placed in a pan surrounded by water. The temperature was gradually raised to about 60°C. (140°F.). At this point the cap was quickly removed and the odor noted. With some practice, by this simple method alone, much may be learned of the cleanliness of the milk. An undesirable odor or the presence of any foreign product conveying an odor will be noted at once at this high temperature as soon as the cap is removed.

A test tube was then filled, or nearly filled with the milk to be examined and the test tube and contents placed in a vertical position in a copper pan surrounded by water and the temperature gradually raised until it stood at about 102°F. This temperature was kept constant until the milk coagulated and the exact time of coagulation was noted. Good milk under these conditions will not coagulate under twelve hours, and should milk coagulate under this period, it is not of a quality that is desirable for retail purposes.

A half-pint bottle or fruit jar was then filled about half full of milk, placed in a pan surrounded by water and raised to the temperature of 100°F., and while at this temperature, a few drops of liquid rennet were added and gently mixed by giving the bottle a rotary motion. The milk was allowed to remain at this temperature until coagulation took place. It was then allowed to stand about twenty minutes after coagulation for the curd to become firm. The whey was then drained off and the curd cut into strips to allow the whey to drain more completely. The jars or milk bottles were then placed in the pan and the curd allowed to ferment for from six to twelve hours. During this time many of the impurities became more pronounced because of the development of gases and foul odors, which were plainly noticeable upon submitting the curd to a somewhat close microscopic examination. At this time the nature of the fermentations were also noted. If the sample was unclean in this respect, it would show streaks in the curd, caused by the escape of gas due to fermentation, and would then be known as a gassy curd. The presence of further undesirable bacteria would be noted in the production of a multitude of small pin holes in the curd. Large holes would be due purely to the mechanical admixture of air in the curd, and not to any fermentation process.

For purposes of comparison, I give the data taken from a few more or less ideal samples of milk. These are not ideal in the sense that they are perfect, but they represent what it is possible to produce commercially under ordinary conditions and at a reasonable price.

| | No. 1. | No. 2. | No. 3. | No. 4. | No. 5. |
|---|---|---|---|---|---|
| Age of milk (hrs.) | 2 | 5 | 3 | 2 | 4 |
| Temperature (F.) | 50 | 52 | 51 | 48 | 55 |
| Ice in Wagon | Yes | Yes | Yes | Yes | Yes |
| Lactometer | 33 | 32 | 32 | 33 | 32 |
| Fat, % | 3.5 | 4.0 | 3.8 | 4.0 | 4.5 |
| Solids | 12.5 | 12.8 | 12.5 | 13.0 | 13.4 |
| Coagulates (hrs.) | 20 | 18 | 16 | 17 | 18 |
| Odor | Good | Good | Good | Good | Good |
| Wis. curd test | Good, clean, firm | Good, clean, firm | Good, clean, firm | Good, clean, firm | Good, clean firm |
| Bacteria per c. c. | 15,000 | 20,000 | 50,000 | 20,000 | 15,000 |
| Fermentation test | No gas | No gas | No gas | No gas | No gas |

An examination of the data from the different cities studied, reveals at once the fact that in none of the cases was the milk sold at retail entirely satisfactory in every respect. Frequently it was of rather good quality from a food value standpoint, but in no single instance where bacterial examination was made did the content fall as low as 50,000 bacteria per cubic centimeter.

One thing is very apparent from the result of this investigation and that is that the cities, of their own initiative, should attempt and prosecute vigorously a thorough daily, or at least weekly, inspection of their milk supply. This inspection should be handled in a manner much different from the way in which it is handled at the present time in a majority of those cities having local inspection. It is indeed difficult to find any consecutive data regarding the milk supply in any of our cities, although in numerous instances cities have local sanitary or milk inspectors. Just why this should be is not apparent. It may be that the salaries paid these inspectors is not sufficient to warrant their spending their time in this work. It may be that they are a class of men who are not capable of making these inspections satisfactorily, or it may be that there are no facilities provided for these inspections. It is, however, obvious that little will be accomplished in the way of providing a purer milk supply until the councils in the cities recognize that it is necessary to appoint an inspector who knows how to inspect and how to examine milk, to give his time to this work, who will continuously engage, and especially during the hot summer months, in a laboratory study of the milk retailed in his particular city.

The data which we have gathered, emphasizes clearly another condition widely prevalent, for which condition responsibility is divided among producer, milk dealer or vendor, and consumer. This condition we may briefly discuss under the heading, "care of the milk." To produce clean, wholesome milk, it is of course necessary that the surroundings under which it is produced are of such a nature that the milk is not contaminated after it leaves the udder of the cow. This means that the barn of the producer must be clean and the stable surroundings

clean, and that the attendants and employes must be of sufficient intelligence to observe these ordinary sanitary requirements. After being produced in a cleanly manner, the product is placed in a clean can or in clean, thoroughly scalded bottles for distribution. This bottling of milk, which is decidedly the better way to retail milk, should be done at the place where the milk is produced, and immediately after bottling the milk should be stored in iced receptacles so that it is reduced to a low temperature at once and kept continually at this temperature. It should then be delivered as quickly as possible to the consumer or milk dealer, and the conditions of refrigeration started where the milk is produced should be kept up continually until the milk is delivered to the consumer.

The consumers duties in this matter are by no means light. Milk produced under very favorable conditions on the farm and kept iced until it reaches the consumers hands may be ruined by being poured into an unclean receptacle, or by being allowed to stand on the porch in the hot sun for two or three hours after delivery. The consumer, upon receiving the milk from the dealer, should immediately place the same in an iced receptacle or in the refrigerator where the continued low temperature is conserved.

Since the advent of the milk bottle and its wide distribution in the homes, a great deal of difficulty has been encountered by milk producers from the return of unclean milk bottles. It should be remembered by the home keeper that the easiest time to clean a milk bottle is as soon as the milk is removed from the bottle. It may then be readily washed out with luke warm water, and may then be thoroughly cleaned and scalded out with boiling water. The dish towel should not be used to dry the inside of the milk bottle. It may be turned bottom side up and allowed to drain after having been thoroughly scalded, and will then be in good condition to return to the milk dealer.

The responsibility for the care of milk after it leaves the udder of the cow rests entirely with the producer, dealer and consumer, and about equally among the three.

During the last few years there has been springing up in various sections of the country, due to the continued agitation of this matter, an increasing demand for a purer, cleaner, more wholesome milk. In no way can the great desire for this product be more clearly emphasized than by the data which we present herewith in this bulletin. This demand has quite properly, it seems to us, taken the form of a demand for the production of milk bearing a definite, valid guaranty of its purity and cleanliness. This has been met in a few sections of the country by the production of what has been designated "Certified Milk."

The term certified milk has come to mean practically clean milk. The term originated in New Jersey, and was first applied to the product produced by Mr. Stephen Francisco, of Newark, N. J. In substance, the requirements for certified milk are that the cows shall be subjected to the tuberculin test and demonstrated free from tuberculosis. They shall be kept clean and shall be groomed daily and their udders washed or sponged immediately previous to the milking. The milking shall be done in a covered pail and the milk itself shall be free from dirt, pus and pathogenic organisms at all times. It shall not contain to exceed 10,000

bacteria per cubic centimeter. The stables wherein the cows are kept shall have a cement floor, tight and smooth walls and ceilings, which must be kept free from accumulations of dirt and dust. The milkers shall be healthy individuals, and their milking suits shall be clean. Immediately after milking, the milk must be thoroughly cooled and placed in iced receptacles and kept in this condition until delivered to the customer. Aside from these factors, certain standards of quality, such as the legal standard for milk solids and milk fat are required.

There are comparatively few dairymen producing certified milk. It may be produced without an enormous expenditure of money and it is possible for nearly all dairymen, without an outlay of much money, to produce milk which, while it may not be certified, conforms to unusual requirements of cleanliness.

Some of the biggest problems with which we have to deal in the milk supply of a city are found among the middlemen, or milk distributors in the city. These men in most instances have nothing to do with the production of the milk, but are mere jobbers, transmitting milk received by them from the dairyman to the consumer. Probably most of the milk retailed in cities passes through the hands of these middlemen or milk jobbers, and very frequently these men know little concerning the proper methods for the handling of milk to insure a clean, wholesome product to the consumer. There business frequently seems to be to handle as large a quantity of milk as they can, thereby furnishing as many consumers as may be without any special regard for the quality or sanitary condition of the product they handle. We find frequently as a result of these inspections, that these milk depots operated by these middlemen are far from being in a satisfactory sanitary condition, and it is quite desirable that these places be kept under as close scrutiny and supervision as the resources of the Department will permit.

Among other things, it is necessary that the milk should be transferred from their hands to the consumer as rapidly as possible after having been delivered by the dairyman. It is now quite common to have the milk delivered in bottles and this custom is certainly commendable where the milk is bottled on the farm or at the milk dealer's dairy. The custom of transporting milk from house to house in a large receptacle, such as a can, in most instances should be condemned. The old custom of dipping out the milk for the customer with a dipper, placing the dipper back on top of the can, driving to the next house and repeating the operation, should be discouraged, as should likewise the method followed by some milk dealers of filling the bottle while the wagon is enroute from one residence to another. The customer expects when securing a bottle of milk that the milk was bottled upon the farm where it was produced, or at least bottled by the milk dealer before starting upon his route, and when a dealer bottles his milk during the time of delivery, the consumer is deceived regarding the method in which the milk has been handled and the product is usually of a quality much inferior to what it would be if it had been handled in the correct way.

Probably the most commendable way to handle milk is to furnish it in private bottles or private cans. One customer may be exceedingly careful and particular about the condition of the milk bottle which she returns to the dealer. Her neighbor may take no care whatever of the

bottle, and both being returned to the same dealer, the one who has observed the scrupulous cleanliness has absolutely no assurance that she will secure in return either the same bottle or one which has been well cared for. To overcome this objection as much as possible, in some sections of the state the milk dealer delivers the milk in private milk cans owned by the consumer, and it is her duty, before returning the can, to put it in a condition fit for the introduction of milk without any further treatment on the part of the dairyman. There is more work connected with this method than with any other, and on that account, from the milk dealers' standpoint, will probably be the most objectionable of any, but it occurs to us that it is one of the best methods for avoiding the various opportunities for contamination that exist all along the line in the production and delivery of sanitary milk.

In various cities resort is being had to the use of the pasteurizer as a means of eliminating the present evils connected with the milk supply. Pasteurized milk for city consumption can never take the place of pure milk. The first great requisite in the production of milk is extreme cleanliness in handling the product. The second great requisite is the refrigeration of the milk or reducing it quickly to a very low temperature. Where these requirements are religiously fulfilled there is neither necessity for nor desirability for the introduction of the pasturizer. In fact, the pasteurizing of such milk distinctly lowers its value. If it is impossible to secure a clean, pure milk, then the pasturizer should be resorted to and the product should be thoroughly and completely pasteurized. Probably the greatest objection at the present time to the use of the pasteurizer is not an objection to the pasteurizer itself, but to the manner in which the pasturization is conducted. The proper temperature is not maintained for a sufficient length of time to render the product safe for use.

The desirability for a thorough systematic inspection and control of the milk sold at retail seems to demand that we should insist that milk which is sold at retail be produced from healthful animals, that it be produced under more than ordinary conditions of cleanliness and sanitation, and that the methods of handling it from the time it leaves the producer until it reaches the consumer be such that its quality is not impaired during this period of transportation.

During the past two years particularly, the Department has expended considerable effort in studying the problems involved in this city milk supply. The work is being conducted during the coming summer, and it is exceedingly desirable that funds should be provided so that this class of work may be extended generally throughout the state.

## DAIRY TESTS AT FAIRS.

Dairy tests were conducted under the supervision of the State Dairy and Food Department at the State Fair, Detroit, at the West Michigan fair, Grand Rapids, and at the Midland and Traverse City fairs.

For the Detroit and Grand Rapids tests the cows were given three days preliminary feeding. The owners of the cows selected the kinds of feed they would feed as well as the amounts of each, provided that at least twenty pounds of dry matter was fed per day to each cow, and that the cows were fed the same ration during the three days test as during the preliminary feeding period.

For the Detroit test each cow was given credit for one unit for each ounce of fat produced during the three days test, one unit for each ten ounces of solids not fat and one unit for each ten days that had elapsed after forty days after calving, and the standing of the cow determined by dividing the total cost of her feed by the total number of units credited to her. At the other fairs the fat was valued at thirty cents per pound, the solids not fat at three cents per pound and the cow credited with the equivalent to one ounce of butterfat for each ten days that had elapsed after forty days after calving. The standing of the cow was determined by subtracting the cost of her feed from the value of her product.

At Detroit and Grand Rapids the prizes were 1st, $50.00; 2nd, $25.00; 3rd, $15.00; 4th, $10.00.

At Traverse City because of rainy weather the test was for one day only.

## COW TESTING ASSOCIATIONS.

The general plan of organizing co-operative cow testing associations has been outlined in Bulletin No. 137. A few farmers, owning a sufficient number of cows, simply meet and organize under the State laws, elect officers and hire a competent man to come to their farms once a month and test their cows for economical production of milk and butterfat. The expense is paid pro rata by each man in proportion to the number of cows he owns. It is desirable to have a sufficient number of cows in the association so that the expense will not exceed $1.00 to $1.50 per cow. The cows should be in 26 herds as there are only 26 working days in a month. If, however, two farms are located so near each other that the tester can test both herds in one day, more herds can be admitted. In such cases it is customary to have the regular hours for milking one-half hour apart to give the tester an opportunity to sample both herds. The cost is dependent upon the salary paid the cow testing expert, and during the year 1907 has not exceeded $1.07 per cow. It has been endeavored to secure as cow testing experts men who have had previous training or who have attended the special dairy course at

Michigan Agricultural College. The position as cow testing expect offers excellent opportunities for dairy students to get the best kind of practical experience and is of material assistance in fitting them for more responsible positions. The training is of special value to men who contemplate becoming managers of creameries or large dairies, and should be eagerly sought by such men.

### THE FEEDING AND THE FEEDS.

The tester visits one herd a day, except in the case stated above; he arrives in the afternoon and takes part in the feeding. The farmer feeds his cows their usual feed but records of each feed is obtained by the cow tester.

In order to promote interest in good dairy animals premiums have been offered at the various fairs for the best animals as far as their excellence could be determined by form, color and milk signs, but through it all, it has often been forgotten which quality in the cows is of the most value, and sometimes perhaps other qualities have been substituted. But the dairyman should not forget that for his use that cow is best which pays best for her feed. If we do not get that quality to the front in our dairy animals then much of our work has been done for naught. It is evident that the cow which can best utilize the roughage a farmer has at his disposal is the one which it is most profitable for him to keep. Each individual of the herd should be fed according to her ability to convert feed into milk and that cow is the best which produces the greatest yield from a given amount of feed.

An effort has been made to persuade the farmer to feed rations which besides being cheap are at the same time bulky, succulent and palatable, sufficient and uniform in these respects throughout the year. Many rations lack in bulk and it is believed that more attention should be paid to this factor in the ration. In many instances the addition of straw to the dairy ration would undoubtedly prove beneficial as well as profitable.

Except in the older dairy sections of the State the rations usually lack in succulency. It should be remembered that our most prominent dairy breeds have reached their great development on succulent feed. The dairymen of the old world have long made it a practice to raise large amounts of roots and succulent feed for their cattle, a practice which undoubtedly assists them materially in keeping so many cows on so small areas. The cheapest form of succulency which our farmers have at their disposal is undoubtedly corn ensilage and is rapidly being adopted by the members of the associations. The records of Newaygo County Dairy Testing Association show that while in 1906 only 13 per cent fed ensilage this percentage had in 1907 increased to 27.5 per cent, and while in 1906 only 45 per cent of their members fed succulent feed of any kind, the records for 1907 show a percentage of 65.5 per cent.

The price of feeding stuff during 1907 was considerably higher than during 1906, and so much greater has been the need of judicious selection of economical feeding stuffs. The associations themselves furnish an excellent opportunity for buying feed co-operatively and in large quantities, which in nearly every case results in lower cost. The farmers should take advantage of this opportunity. A comparison in cost

price of feed in the different herds in Newaygo County Association shows a difference in the price of linseed meal for the same month of $5.00 per ton. These herds were only a few miles apart and it is evident that if the feed had been bought in a co-operative way at least $5.00 per ton could have been saved to the owners of herds e, D, G, Q and R.

The price fixed for pasture varies considerably in the different herds, according to the kind of pasture and the time of the year. As a rule, however, when we take into consideration the value of the land and the crops which it would produce the price is undoubtedly much too low except in the case of wood-lot pastures. Thus in some cases the cost of summer feeding is calculated as only one-quarter that of winter feeding, a relation which is out of keeping with the experience of our most expert dairymen, especially on land which costs from $60.00 to $100.00 per acre.

The cow tester has been able to be of much assistance to the individual dairyman in the way of formulating rations. Thus in the case of herd *f* of the North Ottawa Association a comparison between the first and the last month of the year shows a decided improvement in the profits in spite of the fact that the price of feed on the whole had increased and the price of butterfat had decreased 4½ cents.

TABLE SHOWING INCREASE MADE IN THE PROFITS OF ONE HERD PER MONTH AS A RESULT OF MORE JUDICIOUS SELECTION OF ECONOMICAL FEEDING STUFFS.

| | Lbs. milk. | Lbs. butterfat. | Price butterfat. | Value butterfat. | Cost of feed. | Total profit. |
|---|---|---|---|---|---|---|
| January..... | 5,731 | 255.7 | $32 50 | $83 08 | $80 87 | $2 21 |
| December..... | 4,950 | 212.1 | 28 00 | 59 38 | 42 51 | 16 87 |

It will be seen that although the price of feed had gone up the cost of the ration of the 11 cows had been reduced almost 50 per cent and the profits increased from $2.21 to $16.87.

In this connection should be mentioned the advisability of holding a meeting of the members at least once a month during the winter months, when questions of feeding can be discussed. Such discussions will prove of great benefit to the members in an educational way and will in time develop a co-operative feeling among the members and this indeed is a valuable asset for any community.

## BREEDING AND SELECTION.

If the individual dairyman wishes to improve the dairy qualities in his herd or provide for a herd which will give him a better income year after year he can go about it in two ways. He can by the aid of his records from the cow testing associations, select his best cows to head the herd and by breeding them to good sires with dairy qualities be reasonably certain to obtain young animals with dairy qualities. The heifers of such breeding are used to replace the poorer cows in his herd and in a few years he will have a herd which will produce much more net profit for the same labor and feed. The second way is to buy from reputable breeders dairy cows of known qualities or young heifers of

good breeding. But the price asked for such animals, while it may not be exorbitant, is usually more than the average farmer is willing to pay and he will find that if he wants good dairy cows he must raise them himself. And his success will depend on his realization of the great law in breeding that "like begets like or the likeness of an ancestor." Just as surely as the good dairy cow, as a rule, produces offspring with good dairy qualities, so surely must he expect offspring without dairy qualities from the poor dairy cow. For this reason he must choose only his best dairy animals for mothers of his future herd. The systematic dairyman fixes a minimum production as a standard of excellence in a mature cow, and while one is content if a cow produces him 250 pounds of butterfat in a year, another wants 300 pounds and selects only cows capable of such production for his mother cows. In every case the cow must be bodily sound.

But the certainty of inherited dairy qualities in the offspring does not depend upon the good qualities of the mother alone. We can only be reasonably certain when she has been bred to a sire whose ancestry shows the same good qualities which we wish to produce. When the dairyman buys the bull he has at the same time chosen the breed he wishes to work with as well as the type he wants to reproduce in his herd, and for this reason he should choose with care and deliberation. In case the herd is made up of cows of mixed breeding the bull will exert an influence on the offspring of more than 50 per cent. But as with the cow so with the bull. His value is not known until he has been tested. One must see his offspring and know their qualities before one can know his value, and many bulls have been killed before their value was known. Members of a cow testing association have an opportunity to exchange bulls whenever it is necessary to dispose of them, and in this way the ruthless slaughter of young bulls in the prime of their usefulness is prevented. When the type has been established in a herd it is also desirable that the sire and the dam be as nearly alike as possible, in which case the sureness of their ability to reproduce their good qualities in their offspring is increased and retrogression is guarded against. All of which goes to show that it is necessary to have a fixed plan if one shall realize the most out of his work for better animals. The improvement is greatly retarded if the cows one year are bred to a Jersey bull and the next year to a Holstein or Shorthorn or any other breed, and improvement cannot be expected at all if the cows are bred to bulls of unknown breeding or ancestry. That sort of breeding or crossing should be discontinued and the sooner the better. Breeding within a certain breed is always to be preferred.

If the members of the associations will follow these rules they will be certain of permanent improvement. An improvement as was made in the herd of Aug. Kinck (Bulletin 137) is a worthy goal for any dairyman and should be within reach of all. Mr. Kinck increased the average milk production per cow in 7 years from 7,300 to 11,333 pounds per year and the average production of butterfat per cow from 245 to 401 pounds per year, and this improvement was all accomplished by putting into practice the fundamental principles of breeding above outlined in connection with his records from the cow testing association.

Many of the members of the cow testing associations in Michigan have

responded very promptly to the lessons cow testing teaches. Thus during 1907, the first year's existence of the North Ottawa Association, 41 cows were discarded principally because even a short test or perhaps an increased interest in their business in connection with a short test revealed their unprofitableness.

Below follows a record of the cows disposed of during the year and since the close of the year's work many more were sold.

| | North Ottawa Co. Association. | Newaygo Co. Association. |
|---|---|---|
| Sold after 2 months' testing | 12 | 8 |
| Sold after 3 months' testing | 3 | 7 |
| Sold after 4 months' testing | 2 | 1 |
| Sold after 5 months' testing | 4 | 3 |
| Sold after 6 months' testing | 4 | 7 |
| Sold after 7 months' testing | 4 | 8 |
| Sold after 8 months' testing | 4 | 4 |
| Sold after 9 months' testing | 2 | 3 |
| Sold after 10 months' testing | 4 | 3 |
| Sold after 11 months' testing | 1 | 9 |
| Sold after 12 months' testing | 1 | 3 |
| Total | 41 | 56 |

While it is recommended that a cow be tested at least a year before her value for dairying is determined, it has been possible in many instances to tell even after a short test that it would be unprofitable to keep her. However, it is urged that all factors be taken into consideration before a cow is condemned as cows do not do equally well every year.

During the year, in addition to a number of purebred heifers, 33 cows were bought by the members of the Newaygo County Association and of these 21 were purebred dairy animals or high grades, and while only one man owned a purebred dairy bull when the association started, 22 such bulls are now found in the herds, a fact which promises well for the future development of the herds. It was not expected that the second year's average would show much increase over the first year's average as the association has not been organized long enough for the results of the better breeding to be shown in the yield, and the cows purchased were in nearly every instance heifers, which calved in the fall. However, the average butterfat production per cow of the herds tested the first year increased 8 pounds per cow, in spite of the high feed prices and a natural tendency on that account to save on the feed. The average cost of feed the first year was $29.28 per cow and for the second year $36.42. The profit per cow the first year was $20.99 and for the second year $27.43 per cow. This increase in the profit was made possible by the increase in the price of butter.

The profits and returns for $1.00 expended are figured on the basis of the yield of butterfat and the price of butterfat is the price received by the farmer at the creamery. This price, with the same market varies 3.3 cents within the same association, and a comparison between herd O and herd *i* of the Newaygo County Association tells the reason. It

is simply the difference in the price of butter where summer dairying is practiced as compared with the price received under winter dairying, and is a strong argument in favor of winter dairying.

If the cow comes fresh in the fall she gives the most milk when the price of butter is high and when the dairyman has the most time to feed, milk and care for her, and when she is let out on the pasture in the spring she flushes up on the yield of milk almost like a fresh cow. She goes dry during the hottest months in the year and when her owner has the least time to take care of her.

If she comes fresh in the spring she gives a wonderful flow when the pasture is luxuriant but when the pasture gets dry she drops off a little; when the first frost comes she drops off a little more and when permanent cold weather comes she usually goes dry. In the case of herd O and with the cows to freshen in May, the daily yield from 8 cows during December was 43 pounds or an average of 5 pounds a day for each cow.

The cost of roughage is based on the local markets and for the concentrated feed is the actual price paid for it.

In determining the total profit, it has been assumed that the value of the calf, the skim milk and the manure from each cow would pay for the labor in feeding and caring for her. This is believed to be liberal pay, and perhaps too liberal where the calf is a high grade or from pure-bred dairy parents.

## COW-TESTER'S NOTES.

Leading dairymen have for a number of years advocated the weighing of individual cow's milk at regular intervals in order to get a reasonably accurate estimate of her yearly yield. If this is not done and the farmer is content with weighing the milk off and on as he happens to think of it, the impressions he gains are apt to be misleading. Some cows give a wonderful flow of milk when they are fresh and if the milk is weighed then, the estimate of her yearly yield is apt to be too high. Then again, that kind of a cow may soon fall off on her milk and perhaps go dry three-fourths of the year. On the other hand, a cow which gives a moderate flow of milk and keeps it up the year round may give the largest yield in a year. If the milk is not weighed regularly a farmer will remember especially the large flows and the cow which gives the moderate flow will not get her just due in his estimation.

In the cow-testing association the weighing of the milk usually begins in the afternoon. The cow-tester weighs the evening's milk and the morning's milk and adds the two figures together to get the amount given for a day. Likewise a proportionate sample of milk is taken at both milkings for testing. It should be strictly observed that the milking is done at the usual milking hours so that he weighs neither more nor less than one day's milk. If the milking hours are so arranged that they extend over more than twenty-four hours, the weight of the milk will be too high and vice versa; therefore, the milking should be done at the regular milking time and the cows should be milked in the same

rotation as the previous day. The cows should also have been milked clean at the previous milking. These factors have much influence on the weight and the test of the milk on the testing day.

When there is competition between the herds it is customary for the tester to come the day before so that he can guarantee that the cows have their usual allowance of feed, are milked clean and are milked at the regular hour. If it is impossible for him to come the day before he can compare the amount of milk on testing day with the amount sold or used on the previous days. If one of the competitors then milks his cows comparatively early the day before testing day it will usually result in a larger yield on testing day but a lower test as it has been found that the greater the distance between milkings the more tendency to poorer milk. And if on comparison the amount of milk on testing day is found to be much larger than the yield on previous days the tester is justified in reducing each cow's milk record proportionately until the same agrees with the average for the previous days. In that event the test would be too low and the farmer would have accomplished the opposite of what he intended. In the cow-testing associations the farmers are cautioned to observe regular milking hours and if they lack the understanding of the importance thereof, it becomes the duty of the cow-tester to inform them. It is a good plan for the cow-tester to vary the testing day slightly or alter his route slightly occasionally so that he sometimes comes unawares.

Before milking the cows' numbers or names should be entered in the stable book in the same rotation in which they are to be found in the year book. As it is one of the purposes of the work to find the actual status of the man's dairy business, every cow in the herd should be entered whether she gives milk or not. Of course heifers are not entered until they have their first calf. The milk is weighed in what is called a shot gun can and should weigh even pounds in order to avoid mistakes.

This can should be eight inches in diameter and twenty-inches high and hold thirty-five pounds. It should also have a rim around the bottom or a handle near the bottom so it may be easily emptied. This can should be part of the cow-tester's outfit. In this way mistakes in subtraction of the weights of different pails are avoided and time is gained in the stable, as the milker can pour the milk into the shot gun can and go to milk the next cow without waiting for the cow-tester to weigh and sample.

In weighing the milk a spring balance is used. It should be able to weigh at least 30 pounds and be graduated into tenths of a pound.

It should have an adjustable indicator and this should be so adjusted that it will point to 0 when the empty can is on the scales. The balance should hang in a convenient place on a hook in the stable, on a level with the eye and where there is plenty of light.

The weight of the milk should be recorded by tenths in order to obtain the greatest possible accuracy in the estimation of the yield.

As soon as the milk is poured into the can a sample is taken for testing. If the testing day should happen to fall on the day when the cow is in heat no sample should be taken as there is usually an abnormal fluctuation in the test and if such is used for calculation of the monthly yield of butterfat this will not be correct, but may be several pounds too high or too low. The same is true if the cow is temporarily ill or for some reason in abnormal condition. If such abnormal conditions can be observed by the expert no sample should be taken for testing. In calculating the yield of butterfat for testing period he may use the previous or the following month's test, or an average of them.

Milk thief.

Fresh milch cows should not be tested until three days after calving. The milk may be weighed but no sample should be taken for testing. The test usually fluctuates abnormally during the first three days.

The sample for testing is taken with a milk thief with a diameter of one-half inch, the lower end of which is reduced to an opening of one-fourth inch. It may be a glass tube or it may be made of brass or copper; it is advisable that it be of some material which does not break easily, as this tube is carried by the tester from place to place. The tube is lowered into the milk and when the bottom of the can is reached the thumb is placed upon the upper opening, thus shutting off the air. The tube is then lifted up and with it a column of the milk in the can. This column contains an equal proportion of the milk from the top, middle or bottom of the milk. Another reason why this system of taking samples is correct is because of the difference in weight of the two milkings and the difference in the richness of the milk. The tube gets a proportionate sample. It takes a large sample of a large measure of milk and small sample of a small measure. This sample is emptied into a sample bottle properly marked with the number of the cow. In the morning this operation is repeated and the milk thus taken is emptied in the same bottle.

Sometimes there is so little milk in the can that it will be necessary to take double measure to get enough for a sample (17.6 C.C.). It is the rule to take double measure if the weight of the first milking is less than eight pounds. The result will be the same if a double sample is taken of the same cow's milk at the next milking. The aim is to get a sample for testing which will truly represent the richness of both the evening's and the morning's milk when mixed.

Sample bottle

It is a common rule that the greater the time between the milkings the more milk one gets but it is not so rich. A cow that was milked at six, eight and ten hour intervals gave the following results:

Noon .....10 lbs. testing 3.70 per cent.
Evening .....12 lbs. testing 3.40 per cent.
Morning .....18 lbs. testing 2.90 per cent.

40 lbs.

If we took an equal amount of milk from each of these weights and mixed them for testing we would get the same results as by adding the fat percentages and dividing by three, namely 3.33 per cent. But if we figure out the actual amount of fat in the milk and divide by the milk we find the actual average test.

10 lbs. milk tested 3.70 per cent, equals .370 lbs. butterfat.
12 lbs. milk tested 3.40 per cent, equals .408 lbs. butterfat.
18 lbs. milk tested 2.90 per cent, equals .522 lbs. butterfat.

40 1.300

Average fat per cent, $\frac{1.300}{40} = 3.25$.

This is just what the milk thief does, because it takes a sample of the milk in proportion to the weight of it. 3.33—3.25 equals 0.08 per cent error would give the cow credit for $40 \times .08 = .032$ pounds too much butterfat for the day, or .96 pounds too much for the month.

As soon as the sample has been emptied into the bottle the cork is put in so that the sample may be kept clean and to prevent the moisture in the milk from evaporating, in which case the test would be too high. The number or name of the cow is written with a lead pencil on the frosted surface of the bottle. The sample bottles may then be put into a sample tray which is a very convenient way of carrying the bottles and prevents tipping over. The places in the tray may be numbered and if the numbers of the cows correspond with the numbers in the tray the different sample bottles are easier to find in a hurry. During the summer months it may be necessary to cool the samples over night in order to keep them from souring.

*Correct weighing and correct sampling is the very foundation for accuracy of the work*, and should be done with most scrupulous care. If for instance a mistake of one-half pound is made at each weighing, the error per month will be thirty pounds. The weight of the individual cow's milk is entered in the stable book at once. These sums added together should give the total amount of milk for the day. The milk from all of the cows should then be weighed on platform scales and the weight should check with the total amount as found by addition of the individual cow's milk. There is, however, apt to be some little difference if the herd is large, for the individual cow's milk added together will usually show a little more than the bulk weight of the milk. This is somewhat excusable as a large quantity of milk can be weighed with greater degree of accuracy than can a small amount. This difference, if it exists, should be divided between the individual cows and the corrected weights used in the books. As it is probable that the error with the cow which gives little milk is just as great as with the one which gives much, the difference in the total amounts of milk should be divided so that any subtraction or addition will be the same for all the cows which gave milk, regardless of the amount of the same.

For instance 11 cows according to individual weighing gave 190.4 pounds of milk, but the bulk weight is found to be 189 pounds. This difference 1.4 pounds is divided between the 11 cows so that 0.1 pounds is subtracted from each individual cow's milk. It is evident that the accuracy of the whole system of cow-testing lies in careful weighing and sampling. These are the main factors in the accuracy of the calculations and it is therefore a work which should be intrusted to careful and conscientious people only.

Even if the milk is reduced in the above mentioned way the cow-tester should at the end of each fiscal year compare the amount of milk calculated with the amounts actually sold, fed to calves, and used in the house. The difference which is figured in percentage should be subtracted from or added to each cow's milk and a corresponding amount of butterfat, calculated by using the average test, subtracted from or added to the total butterfat. The difference will not exceed 2 per cent if the work is carefully done.

The following is a record obtained from the Vejen Denmark Cow-Testing Association, and shows the difference between the milk calculated and the amount actually weighed in at the creamery.

| Herd's letter. | No. cows in 364 days. | Lbs. milk calculated by tester. | Lbs. milk delivered at creamery. | Per cent difference. |
|---|---|---|---|---|
| A | 49 | 7,082 | 6,759 | 4 |
| B | 44 | 6,136 | 6,162 | 0 |
| C | 34 | 5,956 | 5,749 | 3 |
| D | 38 | 7,031 | 7,173 | 1 |
| E | 17 | 6,074 | 6,115 | 0 |
| F | 33 | 5,968 | 5,801 | 2 |
| G | 19 | 6,017 | 5,925 | 1 |
| H | 18 | 6,396 | 6,135 | 4 |
| I | 23 | 6,126 | 5,878 | 4 |
| J | 23 | 7,275 | 7,014 | 3 |
| K | 15 | 7,140 | 6,856 | 4 |
| L | 13 | 6,698 | 6,850 | 2 |
| M | 7 | 5,758 | 5,718 | 0 |
| N | 12 | 6,404 | 6,094 | 4 |
| P | 19 | 7,449 | 7,305 | 1 |
| R | 23 | 6,234 | 6,208 | 0 |
| S | 29 | 5,634 | 5,291 | 6 |
| T | 19 | 6,918 | 6,779 | 2 |
| U | 17 | 5,929 | 5,817 | 1 |
| V | 11 | 6,499 | 6,431 | 1 |
| X | 15 | 6,515 | 6,463 | 0 |
| Y | 15 | 5,032 | 4,762 | 5 |
| Z | 13 | 7,133 | 7,332 | 2 |
| AE | 5 | 7,502 | 7,593 | 1 |
| 1904-5 | 522 | 6,445 | 6,312 | 2 |
| 1903-4 | 495 | 6,716 | 6,470 | 3 |
| 1902-3 | 492 | 6,656 | 6,429 | 3 |
| 1901-2 | 497 | 6,346 | 6,135 | 3 |
| 1900-1 | 504 | 5,901 | ..... | ..... |

THE TESTING.

The fat determinations should invariably be done at the farm unless situated in the immediate vicinity of a creamery. The reason for this is the difficulty in transporting the samples to the creamery without leakage or breakage, churning of the milk in hot weather, etc., all of which renders correct determination difficult. Another and equally important reason is that the dairyman becomes more interested in the work if it is done on the farm. He usually assists the expert with the testing and in this way acquires an understanding of the principles and

the use of the Babcock test which he would not otherwise get. The result is that the process loses the mystery which it always held for him before.

It may be well here to warn the expert to be very careful with the handling of the acid where the testing is done on the farm. The jug should be carefully corked and placed where children can not reach it. The shaking of the bottles should also be done far enough away from other persons to prevent any damage to persons or clothes, in case a bottle should break.

The tester should rest on solid foundation and care should be taken that it stands level and is well oiled.

After the whirling is completed the bottles should be placed in water at a temperature of 140 degrees for a few minutes before readings are taken in order to insure correct readings. During the whirling of the bottles in a hand tester the liquid is usually cooled and the readings would be too low unless brought to the correct temperature of 140 degrees.

As to the correctness of the weighing of the milk can be proven by weighing the whole amount so can the correctness of the test be checked up by taking an average sample of the whole amount of milk for testing. The test of this check sample should not vary more than 0.2 per cent from the average test as calculated by dividing the total amount of butterfat by the total amount of milk.

### THE CALCULATION.

In order to obtain reliable foundation for the records it is recommended that the dairyman make notes of any changes of feed during the testing period. He should also note the date of birth of calves, when a cow goes dry and when she is bred, as well as anything of interest about the herd.

The expert usually arrives in the afternoon before milking and weighs and samples the evening's and the next morning's milk. The testing takes place in the morning and this day is designated as testing day. After the head of the blank is filled in with the number and name of the cow, etc., the next thing to do before calculating the yield is to find the testing period. It would be best if all testing periods of each herd were of equal length and that the testing day be situated exactly in the middle of the testing period, in which case the figures obtained would count an equal number of days ahead and back from the testing day. Thus if the testing period is 33 days, it means that there should be 16 days on each side of the testing day. But as it is not always possible to test on the same day of each month, the length of the period must be varied with the length between the testings, so that the testing day always comes as near the middle of the testing period as possible. If this rule is not followed the results will be less accurate. Thus if the testing day is located near the beginning of the period the calculations will give too high results, and if it is located in the latter part of the period the calculated results will be less than the actual yield. The reason for this is that it is only a short time that the cow's yield of milk is increasing but the decrease is gradual and extends over many testing periods. And as the test usually in-

creases during the latter part of the lactation period this would also affect the correctness of the results.

This rule that the testing period must reach equal distances on both sides of the testing day and be so timed that it always ends exactly in the middle of the time between two testings is one which greatly affects the accuracy of the work and should not be tampered with.

The number of days in the testing period is recorded in the space set aside for it and should be understood to include both days mentioned in the testing period. Thus if the testing period extends from the 10th of March to the 11th of April it means that both days are included and that the period contains 33 days.

The yield of milk and butterfat during the testing period is found by multiplying the yield on testing day with the number of days in the testing period. While the daily yield of milk per cow is recorded in tenths, the monthly yield is recorded in whole pounds; the yield of butterfat is always recorded in tenths of pounds. This rule should be strictly adhered to in order to obtain the greatest possible accuracy.

In figuring the yield of milk and butterfat the first three days after calving should not be included, and the cow is figured as being dry when she is not milked every day.

The price of butterfat and the value of the fat can, as a rule, not be entered until next testing day unless this price is agreed on before hand, or already known. The daily feed ration when multiplied by the number of days in the testing period is entered in the space designated for it.

## WATER AND STARCH IN MANUFACTURED MEAT PRODUCTS.

BY FLOYD W. ROBISON, STATE ANALYST, LANSING, MICH.

Among chemists and certain manufacturers it has been known for some time that flour and water were in some instances being used in the manufacture of sausages. By the term sausages is meant throughout this article, the ordinary sausage, bologna and Frankfurts. While, in many cases the use of flour and water has been known, yet the cases where its use is unknown appear to be nearly if not quite as frequent. From the German reports (Ostertag) it appears that the practice has been very common for thirty years in certain parts of Germany, while in other sections, its use is entirely unknown. In the case of Armour & Company vs. A. C. Bird, Mich. Dairy & Food Commissioner in Ingham County, Circuit Court in Chancery, the plaintiff brought German butchers as witnesses who testified that in Germany the practice of adding flour and water was widespread. The state on the other hand, produced several witnesses, Germans of large experience who testified that in their experience in Germany in their localities, no flour and

water were used. This up-to-date testimony bears out the statements of Ostertag.

On the other hand, the state produced many witnesses, consumers, housekeepers, who insisted that if flour and water were used in sausages, they were deceived as they expected them to be pure meat products. It is very clear from the results of our investigations in the matter, that there has been in the last two or three years especially a decidedly growing tendency to a greater use of flour and water and due, no doubt, to the activity of the retailers of the specially prepared flours in disseminating the information as widely as possible. The claim of the large manufacturers who use flour is that it is for the purpose of acting merely as a binder and not to adulterate the article in question. They claim that it is absolutely necessary to add water in order that the meat may be stuffed into thin casings and to produce a juicy consistency as demanded by the consumer. A further representation is made that the flour or cereal as it is called, acts as an absorbent of fat and hence is necessary in pork sausage especially. Some manufacturers claim that they use cereal in bologna and Frankfurts but do not find it necessary or desirable in pork sausage and thus the matter rests, one manufacturer denying what another affirms, as absolutely necessary. The experiments conducted in our laboratory embraced every phase of the matter which was afterwards counted in Armour & Company's bill of complaint. Appearance, texture, palatability, marketability, consistency and practicability. It was found practicable to manufacture a pure meat sausage and such sausage was usually of a decidedly higher quality than a sausage made with either flour or water or both. In a high grade sausage, it cannot be said that flour or water or both improve the appearance, consistency and certainly not the palatability of the product. It is true that when low grade meats, inferior cuts of meats and large quantities of hearts, ox lips, ears, etc., are used as sausage, that the use of flour may improve the binding power of the meat, and the addition of water to such products may and undoubtedly does facilitate the stuffing into thin casings. And again even in meats with inferior binding power, this property may be improved by the use of higher grade meats such as veal for example, and in this way the improvement in the appearance of the product is a true index of the actual improvement in the quality of the product.

That the prime objects of the use of flour is for the purposes of covering up the identity of certain meats, and permitting the incorporation of water, there can be no doubt. This is shown commercially, in the fact that where flour and water are not used, the product is always a high grade one and that the more of the low grade meats that have entered into the product, the greater the quantity of flour used.

The flour which has found the greatest commercial distribution in this country is corn flour. This is not the flour that butchers generally, especially German butchers have been most in the habit of using. Potato flour is the flour used to the greatest extent in Germany and the one most familiar to butchers. Corn flour has been sold in a disguised form to most local butchers and its identity seems to be known in but few

instances and those by chemists, and superintendents and not actual sausage makers.

The Bureau of Animal Industry has a ruling prohibiting the use of potato flour in meat products and undoubtedly this ruling more than any other thing has contributed to the use of corn flour so generally. Just why the ruling should prohibit the use of potato flour as a binder and absorbant, and permit the use of any and every other flour, especially corn flour, I have been unable to determine. Potato flour has a slightly higher absorbing power in the cold than has corn flour, but when taken at the temperature of 70 degrees C. which is more nearly the temperature to which bolognas and Frankfurters are subjected during the process of manufacture, there is little difference in the absorbing power between the two flours. In our experiments we used a test tube which would give as nearly as possible the same conditions as in Frankfurts and bolognas. (Kickton a German chemist experimented in this same way with potato flour.) There was no difficulty in getting five parts of either corn or potato flour to take up and hold in a firm mass 50 parts of water. This absorbing power would without doubt be increased by mixing the flour with the meat because of the increased surfaces exposed.

The prime excuse for the use of flour, or cereal as it is called, given by the manufacturer is that the flour acts as an absorbent of the fat. That it might hold some of the fat we do not doubt, but when it becomes apparent that in pork sausage, which is usually of higher quality than Frankfurts and bologna, and also usually contains much more fat, usually a much smaller quantity of flour is used, the argument loses much of its force.

In pursuing the investigation into this matter, we are mindful of numerous complaints by women especially, that sausage purchased by them at times would not hold up, while frying, by which statements they meant that it would dwindle away until there was scarcely nothing left. This led us to discover that certain butchers who in reality prided themselves on making sausage without cereal were in reality loading the product with water and thus taking advantage of the enormous combining power of lean meat. A product manufactured in this way would fry away when put on the frying pan and this while to be severely condemned yet could be quite readily detected in the kitchen. But the introduction of flour or starch into the product very cleverly concealed the water, because in frying it acted as a frame work preventing undue shrinkage and thus the housewife supposed she was getting pure meat when the adulteration with water had been covered up merely.

Flour in sausage does not improve the consistency nor act as a binder when the product is put into the frying pan. In every instance (and a great many experiments were conducted) where flour was used, in frying, the product became crumbly and would stick to the frying pan, thereby making it difficult to fry without the product breaking up. The sausage made from pure meat only acted like meat in the frying pan,

frying nicely remaining in a compact form, its consistency and texture being all that could be desired.

Without doubt some forms of modern machinery have contributed to the addition of water. The so-called silent cutter is used on nearly all the products put up with water. It is especially constructed to take advantage of the great combining power of lean meat, and the butcher does not use this machine long before it becomes very apparent to him that meat ingeniously handled, can be made to take up an enormous quantity of water.

Two other points without attempting to give too much detail. The introduction of flour into meat products has a decided effect from a dietetic point. Pure wholesome cereal is all right in its proper place, but what are the dangers incidental to the diet of an invalid, who perchance may be suffering from a by no means uncommon kidney disease, of the introduction into sausage of a starchy material which in itself may be perfectly wholesome and yet by its presence removing from his bill of fare a very valuable and otherwise desirable food product.

And again the sense of this organization is in favor of rigid, sanitary reform on the preparation of articles of food. We all know that grave as is the introduction of water into milk from a food standpoint, yet vastly of greater consideration is the great danger of actually infecting our people with different forms of disease the result of a polluted water supply.

In the court case heretofore referred to, in spite of the fact that the Bureau of Animal Industry regulations require that "only wholesome water" shall be used, yet so far as the record of any witnesses in the case were concerned at no time had the water been withheld from the meats because of a polluted water supply. Those of us who have access to the reports of the Health Department of the City of Chicago, know with what frequency during the past few years that water has been condemned as polluted and the public warned in regard thereto. These points are merely incidental however, but do illustrate how a commercial consideration of this kind makes more complex the state and municipal health problems. One step further. I am here reminded of the evidence in many cases of sausage poisoning being traced to a bacillus which we find so prevalent in a polluted water supply. So we may see a great danger in the practice of adding water even though it were construed to be a legitimate practice.

The detecting of flour is not difficult. To demonstrate added water is not so simple, especially when it may be added in small amounts, but when the moisture limit of fresh meat is exceeded, and I may add simply that that ratio, (to-wit) the ratio between protein and water in fresh meat, is a very constant one, the further addition of water is easily detected. From our work in this matter, I feel able to state that the addition of water and flour does not improve the palatability, texture, consistency or appearance of the finished product except wherein it conceals inferiority, but on the contrary produces an inferior article. And further I am able to state that it is possible and feasible commercially to prepare sausages without either cereal or added water,

and that such products are high grade articles and their appearance is some index at least of the quality of meats entering therein.

Read before the Sanitary Section Michigan Academy of Science, Ann Arbor, March, 1909.

## APIARY INSPECTION.

Lapeer, Mich., Nov. 24, 1909.

To the Hon. A. C. Bird, Dairy and Food Commissioner of the State of Michigan:

Sir:—I have the honor to summit to you herewith, as required by law, the accompanying report for the fiscal year ending June 30, 1909.

My duties during the year have required me to make two visits to Lansing, one visit to Ann Arbor, thence to Mason by way of Lansing.

During my visits to Lansing 91 colonies of bees were examined distributed into 10 apiaries of which two were found to be infected with foul brood and the number of colonies diseased were 15. Full instruction was given for the eradication of the disease.

At Ann Arbor 131 colonies were examined in three apiaries. The same disease was found in two of the apiaries and in 9 colonies.

At Mason 82 colonies in 4 apiaries were examined. Thirteen colonies in two of the apiaries were found infected with the disease already mentioned.

In all cases instructions were given as to the necessary course to be pursued for the successful treatment of the disease and as a rule owners of diseased bees were not only willing but anxious to follow instructions, so it was not necessary to compel the destruction of any colony, but two or three were destroyed.

### SYMPTOMS AND CURE OF FOUL BROOD.

Some time after a colony of bees is attacked by the common foul brood it begins to wane in prosperity, and in a time which varies in length it will perish entirely. When this stage arrives, or more likely before this, when it is still alive but declining in strength, it will be attacked by robber bees and the disease disseminated as widely as are the colonies from which the robbers come. Hence it is of the first importance that no weak colony of doubtful health be at any time tolerated. This disease is attended by several symptoms which assist in its diagnosis, such as its unpleasant odor, the sunken, discolored and perforated cappings of cells containing diseased brood; but any of these might be mistaken by a person without experience. There is one system, however, which no one need mistake. It is this: insert one end of a common toothpick or something equivalent into the dead matter in the cell suspected and withdraw it gently, if the matter is so viscid that it draws out in a

string a half inch or an inch long, it may certainly be pronounced foul brood.

The remedy for this disease, in theory, is simple enough, it consists only in removing the combs from the colony and giving it frames furnished with foundation or starters of foundation. But when the diseased combs are removed they must be secured against any possibility of visits from bees. The treatment is best accomplished when the bees are gathering nectar from the fields, otherwise proper feeding must be resorted to. It is profitable to destroy diseased colonies if they have become weak, without allowing the escape of any bees. Uniform success is not to be expected if carelessness, or fear of bees, or want of good judgment is present.

R. L. TAYLOR,
State Apiary Inspector.

## LIST OF DAIRY MEETINGS FROM JULY 1 TO DECEMBER 31, 1908.

Ferry, Oceana County, July 15.
Atkins, St. Clair County, July 29.
Sunfield, Eaton County, August 20.
Albion, Calhoun County, August 20.
Baraga, Baraga County, August 22. (Farmers' Picnic.)
Snover, Sanilac County, August 26. (Grange Picnic.)
Omer, Arenac County, September 5. (Farmers' Picnic.)
Petoskey, Emmet County Fair, September 17.
Wacusta, Clinton County, September 22.
School House, Lapeer County, September 24.
School House, St. Clair County, September 25.
Avoca, St. Clair County, September 30.
Parma Grange, Lapeer County, October 6.
Falmouth, Missaukee County, October 9.
Fairgrove, Tuscola County, November 5.
Star City, Missaukee County, November 7.
Galesburg, Kalamazoo County, November 10.
Burnips Corners, Allegan County, November 11.
Red River Valley Dairymen's Association, St. Helaire, Minn., November 16.
Coopersville, Ottawa County, November 21.
National Dairy Show, Chicago, Ill., Dec. 2-10.
Blendon Town Hall, Ottawa County, December 12.
Charlevoix Dairy Association, Charlevoix County, December 15.
Auxiliary meeting of the State Dairymen's Association, Salem, January 13 and 14.
Auxiliary meeting of the State Dairymen's Association, Tecumseh, January 15 and 16.
New Holland, Ottawa county, January 26.
Tri-County Farmer's Institute, Cadillac, January 29 and 30.
Ohio State Dairymen's Association, February 3 and 4.
Farmers' Club, Holland, February 6.
Wisconsin Dairymen's Association, February 10.
Michigan Dairymen's Association, Grand Rapids, February 17, 18 and 19.
Deckerville, Sanilac county, March 10.
Dayton, Berrien county, March 12.
Elsie, Clinton county, March 13.
Farmer's Short Course, Menominee School of Agriculture, March 16-20.
Toledo, Ohio, Dairy Meeting.
Orleans, Ionia county, March 16.
Munger, Bay county, March 17.
Almont, Lapeer county, March 18.
New Era, Oceana county, March 22 and 23.

Traverse City, Grand Traverse county, March 25 and 26.
East Leroy, Calhoun county, April 9.
Allegan, Allegan county, April 13.
Mancelona, Antrim county, April 20.
Alba, Antrim county, April 22.
Pigeon, Huron county, April 23.
Kilmanagh, Huron county, April 24.
Gagetown, Tuscola county, April 24.
Owendale, Huron county, April 24.
Pinnebog, Huron county, May 29.
Coopersville, Ottawa county, June 26.

## GENERAL INSPECTIONS.

During the twelve months ending June thirtieth, 1909, the department inspectors visited 5247 dealers in food products within the state including grocery stocks, ice cream manufacturers and dealers, as well as bakeries, meat markets, restaurants, etc. They also inspected and reported on 411 creameries, 131 cheese factories, including skimming stations and milk depots, 197 dairies and ten condensed milk plants and made 2448 inspections of city milk supply.

### INSPECTIONS. HOW REPORTED.

Inspections of creameries, cheese factories, farm dairies and city milk supply are reported in the bulletins issued by the Department. By way of explanation the following pages are reprinted from a monthly bulletin. These bulletins, containing reports of inspections as shown on the pages reprinted, will be mailed to parties applying for same.

INSPECTION OF

| Name. | Location. | Owner or manager. | Yearly milk receipts. pounds. | Make butter, pounds. | Sanitary surroundings. |
|---|---|---|---|---|---|
| Hillsdale Co., March: | | | | | |
| Litchfield Butter Co. | Litchfield | R. G. Washburn | | | Good |
| Hillsdale Elgin Creamery Co | Hillsdale | F. M. Smith | | 197,173 | Good |
| W. T. Leonard & Co | Reading | W. T. Leonard & Co | | | Fair |
| Ionia Co., March: | | | | | |
| Portland Creamery | Portland | Arthur Nunnelly | | 117,000 | Good |
| Orleans Creamery Co | Orleans | Chris. Liebum | | 103,000 | Good |
| Jackson Co., March: | | | | | |
| Brooklyn Creamery Co | Brooklyn | Archie Brooks | 2,170,956 | 96,376 | Fair |
| Kent Co., March: | | | | | |
| Crittenden Creamery Co | Sand Lake | C. D. Crittenden | | 80,000 | Fair |
| Sparta Creamery Co | Sparta | A. H. Meeker | | | Good |
| Sparta Creamery Station | Sparta | Burns Creamery Co | | | Good |
| W. R. Roach & Co | Kent City | W. R. Roach & Co | | | Poor |
| Lapeer Co., March: | | | | | |
| Lapeer County Creamery | Lapeer | R. F. Frary | | 105,240 | Good |
| Macomb Co., March: | | | | | |
| The Gats Creamery Co | Mt. Clemens | J. F. Gats | | | Good |
| Muskegon Co., March: | | | | | |
| Holton Creamery Co | Holton | O. T. Martin | | 80,000 | Good |
| Newaygo Co., March: | | | | | |
| Blue Line Creamery | White Cloud | B. E. Martin | | 60,000 | Good |
| Oceana Co., March: | | | | | |
| Shelby & New Era Creamery Co. | New Era | George Myers | | 100,000 | Good |
| Hart Creamery Co | Hart | E. K. Smith | | 60,000 | Good |
| Ottawa Co., March: | | | | | |
| Cooperative Creamery Co | Coopersville | Wm. Dubendorf | | 480,000 | Good |
| Agnew Creamery | Agnew | L. Wollengen | | 22,000 | Good |
| St. Clair Co., March: | | | | | |
| Goodell Creamery Co | Goodell | A. L. Keopfgen | | | Poor |
| Port Huron Creamery Co | Port Huron | J. F. Ruff | | | Good |
| St. Joseph Co., March: | | | | | |
| O. K. Creamery Co | Burr Oak | E. B. Watson | | 115,000 | Good |
| Sanilac Co., March: | | | | | |
| Applegate Creamery | Applegate | W. T. Leonard & Co | | | Good |
| Mayflower Creamery Co | Deckerville | Wm. Wilson | | | Fair |
| Union Creamery Co | Deckerville | Frank Burgess | | 215,376 | Good |
| Shiawassee Co., March: | | | | | |
| Durand Creamery Co | Durand | C. E. VanSlyke | | 357,825 | Good |
| Washtenaw Co., March: | | | | | |
| Saline Creamery Co | Saline | E. A. Hauser | 3,228,730 | 215,000 | Good |

CREAMERIES.

| Condition of apparatus. | | | | | | | | | | | Quality of milk. | Score of butter. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample bottles. | Pumps. | Heater. | Separator. | Pasteurizer. | Vats. | Skim milk tank. | Piping. | Churn. | Engine. | Boiler. | | |
| Good | Good | Good | Good | ..... | Good | Good | Good | Good | Good | Good | Fine | 93 |
| Good | Good | ..... | ..... | ..... | Good | ..... | ..... | Good | Fair | Good | ..... | 91 |
| Good | ..... | ..... | ..... | ..... | Good | ..... | ..... | Clean | Poor | Poor | ..... | 90 |
| ..... | ..... | ..... | ..... | Fair | Clean | Clean | Good | Fair | Good | Good | ..... | 90 |
| ..... | Clean | Good | Good | Good | Clean | Clean | Clean | Fair | Good | Fair | Good | 91 |
| Good | Good | Good | Good | ..... | Fine | Fair | Fair | Good | Good | Good | Good | 92 |
| ..... | ..... | ..... | ..... | ..... | Clean | Clean | Clean | Good | Fair | ..... | Fair | 91 |
| Clean | ..... | ..... | ..... | ..... | Clean | ..... | ..... | ..... | New | Good | Good | 93 |
| Clean | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Good | ..... |
| Clean | Clean | Clean | Poor | ..... | Clean | ..... | ..... | Clean | Good | Good | Good | 91 |
| ..... | New | ..... | ..... | Good | Good | ..... | Good | Good | Good | Good | Fair | 91 |
| Good | Good | Good | Good | Good | Good | Fair | Good | Good | ..... | ..... | Good | 92 |
| ..... | ..... | Good | Good | ..... | ..... | Clean | Clean | Poor | Good | Good | Fair | 92 |
| Good | ..... | ..... | ..... | Good | Clean | ..... | Clean | Clean | Good | Good | Fair | 90 |
| Good | Fair | Good | Good | ..... | Clean | Clean | Clean | Clean | Fair | Fair | Good | 92 |
| ..... | ..... | ..... | Good | ..... | Clean | ..... | Fair | Good | Good | Poor | Fair | 91 |
| Good | ..... | Good | ..... | Good | Clean | Clean | Clean | Good | Good | Good | Good | 84 |
| ..... | ..... | ..... | ..... | ..... | Clean | Fair | ..... | Good | Fair | Fair | Fair | 91 |
| Good | ..... | ..... | ..... | ..... | ..... | ..... | ..... | New | Fair | ..... | ..... | 89 |
| ..... | ..... | ..... | ..... | ..... | Good | ..... | Good | Good | Good | Good | Good | 92 |
| Good | Good | ..... | ..... | ..... | Good | Good | Good | Good | Good | Good | ..... | 90 |
| Good | Good | ..... | ..... | ..... | Good | ..... | ..... | Fair | Good | Good | Fair | 90 |
| Good | ..... | ..... | ..... | ..... | Good | ..... | ..... | Good | Good | Good | ..... | 90 |
| Good | Good | ..... | ..... | ..... | Good | ..... | ..... | ..... | Fine | Fine | Fair | 91 |
| Good | Good | ..... | ..... | Good | Fine | ..... | Good | New | New | ..... | Good | 92 |
| ..... | Good | Good | Good | ..... | Good | Fair | Fair | Fair | Good | Good | Good | 92 |

INSPECTION OF

| Name. | Location. | Owner or manager. | Yearly milk receipts. | Make cheese. | Style. |
|---|---|---|---|---|---|
| Berrien Co., January: | | | | | |
| J. T. Clark Milk Depot | St. Joseph | J. T. Clark | | | |
| Shiawassee Co., February: | | | | | |
| Carland Cheese Factory | Carland | A. E. Shannon | 1,282,061 | 136,665 | Soft Michigan |
| Genesee Co., April: | | | | | |
| Freeman Cheese Co | Fenton | Leonard Freeman | | | Mich. cheddar and daisys. |
| Huron Co., April: | | | | | |
| Fred M. Warner Cheese Co | Pigeon | Fred M. Warner | | | Mich. and Mich. cheddar.. |
| Fred M. Warner Cheese Co | Kilmanagh | Fred M. Warner | | | Michigan cheddar |
| Fred M. Warner Cheese Co | Pinnebog | Fred M. Warner | | | Michigan and daisy |
| Oakland Co., April: | | | | | |
| Fred M. Warner Cheese Co | Farmington | Fred M. Warner | | | Michigan |
| Tuscola Co., April: | | | | | |
| Fred M. Warner Cheese Co | Gagetown | Fred M. Warner | | | Michigan |
| Huron Co., May: | | | | | |
| Rice Bros. Cheese Factory | Elkton | Rice Brothers | | | Michigan |
| Lenawee Co., May: | | | | | |
| Cadmus Cheese Factory | Cadmus | C. H. Garnsey | | | Soft Michigan |
| Clayton Cheese Factory | Clayton | C. C. Colvin | | | Soft Michigan |
| Locust Corners Cheese Fact'y | Hudson, R. D. | John Loomis | | | Soft Michigan |
| Weston Cheese Factory | Weston | Geo. B. Horton & Son | | | Soft Michigan |
| Fruit Ridge Cheese Factory | Fruit Ridge | Geo. B. Horton & Son | | | Soft Michigan flats |
| Jasper Cheese Factory | Jasper | Geo. B. Horton & Son | | | Michigan |
| Riverside Cheese Factory | Weston | F. B. Jurden | 1,853,820 | 5,989 | Soft Michigan |
| Posey Lake Cheese Factory | Hudson | Henry Carmichael | | 89,646 | Soft Michigan |
| Delano Cheese Factory | Fairfield Twp. | Riverside Co | 1,000,000 | | Soft Michigan |
| Ogden Center Cheese Factory | Ogden Center | Carson Garnsey | | | Soft Michigan |
| Fairfield Cheese Factory | Fairfield | Geo. B. Horton & Son | | | Soft Michigan |
| Bimo Cheese Factory | Bimo | Geo. B. Horton & Son | | | Soft Michigan |
| Montcalm Co., May: | | | | | |
| Fitspatrick Cheese Factory | Butternut | J. M. Fitspatrick | | | Soft Michigan |
| Crystal Cheese Factory | Crystal | Wallace Grimm | | | Michigan and daisy |
| Oakland Co., May: | | | | | |
| Fred M. Warner Cheese Co | Springbrook | Fred M. Warner | | | |
| Fred M. Warner Cheese Co | Farmington T. | Fred M. Warner | | | Michigan |
| Fred M. Warner Cheese Co | Franklin | Fred M. Warner | | | Michigan |
| Fred M. Warner Cheese Co | Novi | Fred M. Warner | | 137,000 | Michigan |
| Wayne Co., May: | | | | | |
| Fred M. Warner Cheese Co | Plymouth | Fred M. Warner | | | Mich. and soft Mich |
| Menominee Co., June: | | | | | |
| Wilson Cheese Factory | Wilson | W. M. Bellfevil | | | Flats |

CHEESE FACTORIES.

| Cheesemaker. | Sanitary surroundings. | Equipment. | | | | | | Quality of milk. | Starter. |
|---|---|---|---|---|---|---|---|---|---|
| | | Vats. | Presses. | Curd mill. | Whey tank. | Rennet test. | Boiler. | | |
| ..... | Good.... | ..... | .... | ..... | ..... | ..... | 5 H. P.. | ..... | ..... |
| G. Hooker..... | Good.... | 2, good... | 1 | ..... | Good.... | No..... | 12 H. P.. | Good.... | Natural. |
| Emil Falk..... | Good.... | 1, clean... | 1 | ..... | Fair..... | ..... | 10 H. P.. | Good.... | Artificial. |
| Lorenzo Stilwell..... | Good.... | 2, clean... | 2 | ..... | Good.... | ..... | 6 H. P.. | Good.... | Artificial. |
| Wm. Greer..... | Good.... | 3, clean... | 2 | Good.... | ..... | ..... | 6 H. P.. | Good.... | Artificial. |
| Geo. Durnow..... | Good.... | 2, clean... | 2 | ..... | Good.... | ..... | 8 H. P.. | Good.... | ..... |
| Nate Eisenlord..... | Good.... | 2, clean... | 2 | ..... | Good.... | ..... | 8 H. P.. | Good.... | Artificial. |
| Wm. Allen..... | Good.... | 3, clean... | 2 | ..... | Good.... | ..... | 12 H. P.. | Good.... | Artificial. |
| Fred Dickinson..... | Good.... | 1, clean... | 1 | ..... | Good.... | ..... | 12 H. P.. | Good.... | Artificial. |
| C. H. Garnsey..... | Good.... | 3, good... | 2 | None.... | Fair..... | None.... | 6 H. P.. | Good.... | Natural. |
| W. F. Smith..... | Fair..... | 2, good... | 2 | None.... | Fair..... | None.... | 6 H. P.. | Good.... | ..... |
| Claude Farnham..... | Fair..... | 2, good... | 1 | None.... | Poor..... | None.... | 6 H. P.. | Good.... | Natural. |
| Jas. Edwards..... | Good.... | 3, clean... | 3 | None.... | Good.... | ..... | 6 H. P.. | Good.... | ..... |
| C. E. Finch..... | Good.... | 2, clean... | 2 | None.... | Good.... | None.... | 4 H. P.. | Good.... | ..... |
| Jas. Bellner..... | Good.... | 3, clean... | 2 | ..... | Good.... | None.... | 12 H. P.. | Good.... | Artificial. |
| F. B. Jurden..... | Good.... | 3, clean... | 2 | ..... | Good.... | ..... | 6 H. P.. | Good.... | ..... |
| Albert Dewey..... | Good.... | 2, good... | 1 | None.... | Fair..... | ..... | 6 H. P.. | Good.... | Natural. |
| G. Delano..... | Fair..... | 2, fair.... | 1 | ..... | Fair..... | None.... | 6 H. P.. | Good.... | ..... |
| Ralph Burger..... | ..... | 1, good... | .... | None.... | Good.... | None.... | 6 H. P.. | Good.... | ..... |
| Roy F. Porter..... | Good.... | 2 good... | 2 | None.... | Good.... | None.... | 10 H. P.. | Good.... | ..... |
| F. D. Campbell..... | Fair..... | 2, good... | 2 | None.... | Good.... | ..... | 6 H. P.. | Good.... | Natural. |
| J. M. Fitzpatrick..... | Good.... | 4, good... | 2 | ..... | Fair..... | None.... | 12 H. P.. | Good.... | ..... |
| Wallace Grimm..... | Fair..... | 1, good... | 1 | ..... | Good.... | None.... | 10 H. P.. | Good.... | ..... |
| B. J. Roach..... | Good.... | 1, clean... | 1 | ..... | Good.... | ..... | 6 H. P.. | Good.... | Artificial. |
| Ben Dennis..... | Good.... | 1, clean... | 1 | ..... | Good.... | ..... | 8 H. P.. | Good.... | Artificial. |
| Wm. Allen..... | Good.... | 1, good... | 1 | ..... | Good.... | ..... | 6 H. P.. | Good.... | Artificial. |
| John Dennie..... | Good.... | 2, clean... | 2 | ..... | Good.... | None.... | 6 H. P.. | Good.... | Artificial. |
| Duncan Leitch..... | Good.... | 1, clean... | 1 | ..... | Good.... | None.... | 13 H. P.. | Good.... | Artificial. |
| Matt Mareick..... | Fair..... | 1, good... | 1 | ..... | Good.... | None.... | None.... | Gassy.... | ..... |

INSPECTION OF

| Name. | Postoffice. | Patron of. | Total No. of cows. | No. of cows giving milk. | Daily production of milk in pounds. | Breed. |
|---|---|---|---|---|---|---|
| **Oakland Co., January:** | | | | | | |
| Fred Peidsterdat | South Lyon | South Lyon Creamery | 10 | 6 | 60 | Mixed grades |
| Will Underhill | Salem | South Lyon Creamery | 11 | 10 | 200 | Mixed grades |
| Jos. Blackwood | South Lyon | South Lyon Creamery | 11 | 4 | 83 | Grades |
| Wm. Sprague | South Lyon | Detroit | 18 | 10 | 300 | Grades and Holstein |
| **VanBuren Co., January:** | | | | | | |
| Ed. Doyle | Hartford | Lawrence Creamery | 5 | 4 | 75 | Mixed |
| **Washtenaw, Co. Jan.:** | | | | | | |
| Wm. Geiger | Rushton | Worden Creamery | 12 | 11 | 200 | Grades and Jerseys |
| B. Stanbro | Plymouth | Plymouth | 10 | 9 | 190 | Mixed grades. |
| Bert Nelson | Salem | Worden Creamery | 9 | 7 | 125 | Grades |
| Dwight Peebles | Salem | Worden Creamery | 15 | 14 | 225 | Jerseys |
| F. R. Lovelace | Salem | Detroit | 7 | 6 | 80 | Grade Jerseys |
| F. H. Bird | Rushton | Salem Shipping Station | 11 | 8 | 200 | Grades |
| H. W. Smith & Son | Salem | Worden Creamery | 20 | 17 | 435 | Grades |
| Martin Potts | Salem | Detroit | 10 | 7 | 116 | Grade Jerseys |
| E. L. Larned | Salem | | 12 | 10 | 225 | Grades |
| I. W. Hamilton | Salem | Worden Creamery | 7 | 7 | 110 | Grade Jerseys |
| B. F. Shoebridge | Salem | Detroit Creamery | 9 | 8 | 192 | Grades |
| D. E. Smith | Rushton | Worden Creamery | 7 | 5 | 100 | Grades |
| Frank Rider | Salem | Salem | 10 | 8 | 160 | Grades |
| **Wayne Co., January:** | | | | | | |
| S. M. Johnson | Farmington | Milk peddler | 11 | 11 | ..... | Mixed |
| F. G. Terrill | Salem | Detroit Creamery | 10 | 8 | 190 | Grades |
| N. W. Daggett | Plymouth | Milk peddler | 12 | 6 | 50 | |
| Wm. Blouk | Plymouth | City milk supply | 20 | 16 | 400 | |
| Wm. Rider | Plymouth | City milk supply | 6 | 3 | 45 | |
| B. C. McCarthy | Northville | | 25 | 20 | 325 | Grades |
| Geo. Taylor | Salem | | 15 | 8 | 180 | Grades |
| Henry Russell | Northville | | 21 | 14 | 450 | Holstein |
| C. H. Whipple | Northville | | 18 | 6 | 184 | Mixed |
| E. M. Starkweather | Northville | City milk supply | 23 | 18 | ..... | Holstein |
| **Oakland Co., February:** | | | | | | |
| Otto Theska | South Lyon | Detroit Creamery Co | 15 | 10 | 200 | Mixed grades |
| F. L. Hendrix | Northville | | 14 | 10 | 180 | Grades |
| H. Holmes | Northville | Northville Con | 26 | 15 | 240 | Mixed grades |
| F. Kregen | Northville | Detroit Creamery Co | 15 | 9 | 245 | Grade Holstein |
| J. B. Bradley | Salem | | 10 | 8 | 177 | Mixed |
| Daniel Parks | Redford | | 17 | 13 | 250 | |
| Joseph Stoll | Redford | Detroit Creamery Co | 26 | 20 | 500 | |
| H. H. Zahns | Pontiac | | 14 | 8 | ..... | Mixed |
| Fred Hickmot | Pontiac | | 9 | 7 | 85 | Mixed |
| Ernest Leeman | Pontiac | | 24 | 19 | ..... | Mixed |
| Bert Webster | Pontiac | City milk supply | 14 | 6 | 60 | Mixed |
| W. L. Hall | Pontiac | | 7 | 6 | ..... | Mixed |
| Beardsley Bros | Pontiac | | 15 | ..... | ..... | |
| Babcock & Williams | Pontiac | | 18 | 12 | ..... | Mixed |
| Peter Voores | Pontiac | | 8 | ..... | ..... | Mixed |
| C. I. Shattock | Pontiac | | 11 | 7 | 70 | |
| J. B. Gamble | Pontiac | | 7 | 6 | 117 | Jerseys |
| P. A. Knight | Pontiac | | 8 | 7 | 85 | |
| C. S. Kimble | Bloomfield | | 6 | 5 | 100 | |
| J. A. Grayley | Pontiac | | 6 | 5 | 60 | |
| F. C. Graytopp | Pontiac | | 19 | 13 | 210 | |
| W. H. Williamson | Pontiac | | 13 | 9 | 170 | |

FARM DAIRIES.

| Ration. | Stable. | | Cows kept clean. | Water. |
|---|---|---|---|---|
| | Ventilation. | Light. | | |
| Hay and corn fodder, oat bran | Doors, windows | Yes | Yes | Open well. |
| Silage and clover hay, oats | Hay chute | Yes | Yes | Tubular well. |
| Silage and hay, corn and oats | Doors, windows | Fair | Fair | Open well. |
| Hay and corn fodder, Badger dairy feed, cotton seed | Doors, windows | No | No | Open well. |
| Hay, corn fodder, straw | Open to main floor | Fair | Yes | Drive well. |
| Hay and corn fodder, corn, rye | Doors, windows | Fair | Yes | Open well. |
| Silage and hay, cotton seed | | | | |
| Hay, cornfodder, cotton seed, oats | Doors and windows | Fair | Fair | Open well. |
| Silage, hay, Badger and cotton seed | Doors, windows | Yes | Fair | Tubular well. |
| Hay, corn fodder, corn | Doors, windows | Yes | Yes | Open well. |
| Silage, hay, Badger feed | Doors, windows | Little | Yes | Open well. |
| Silage, clover hay, beet pulp | Doors, windows | Yes | Yes | Open well. |
| Corn fodder, corn, oats, hay | Doors, windows | Yes | Yes | Open well. |
| Silage, hay, Badger and cotton seed | Windows | Yes | Yes | Open well. |
| Corn fodder, hay, corn meal | Windows | Yes | | Open well. |
| Silage, hay, cotton seed, beet | Into barn floor | Fair | Yes | Open well. |
| Hay, corn fodder, corn, oats | Cracks in barn | Yes | No | Open well. |
| Hay, corn fodder, corn, oats, bran | Doors, windows | Yes | Fair | Open well. |
| Silage, clover hay, bran | Main floor and silo | Yes | Yes | |
| Hay, corn, oats, cotton seed | Windows | Yes | Yes | Open well. |
| Silage, corn stalks, hay | Doors and floor above | No | Yes | Creek. |
| Hay, corn stalks, silage, oats | Doors, windows | Yes | Yes | Tubular well. |
| Corn stalks, hay, corn, oats | Doors, windows | Yes | Yes | Open well. |
| Silage, hay, cotton seed | King system | Yes | | Open well. |
| Hay, corn, oats, cotton seed | Doors, windows | Yes | Yes | Open well. |
| Silage, hay, Badger, oats, bran | King system | Yes | Yes | Open well. |
| Silage, hay, bran | Doors, windows | Yes | Fair | Spring. |
| Silage, hay, cotton seed, linseed | Hay chutes and silo | Yes | Yes | Drive well. |
| Hay, corn, oats, linseed | Doors, windows | Yes | Yes | Tubular well. |
| Hay, corn, oats, buckwheat | Doors, windows | Yes | Yes | Tubular well. |
| Silage, hay, cotton seed, oats | Windows | No | Yes | Spring. |
| Silage, hay, cotton seed, bran | Windows | Yes | Yes | Tubular well. |
| Silage, hay, oats, corn, cotton seed | Doors, windows | Fair | Yes | Tubular well. |
| Corn, fodder, hay, oats, bran | Doors, windows | Yes | Yes | Open well. |
| Corn stalks, hay, corn meal bran | Doors, windows | Yes | Yes | Tubular well. |
| Hay, corn, oats, cottonseed | Door | No | Fair | Spring. |
| Cornstalks, hay, corn, cottonseed | Hay chute | Yes | Yes | Flowing well. |
| Silage, hay, cottonseed, bran | Five hay chutes | Yes | Yes | Drive well. |
| Silage, hay, corn, oats, cottonseed | Silo and hay chute | Yes | Fair | Drive well. |
| Cornstalks, hay, oats, corn | Door and alley | Fair | Fair | Dug well. |
| | Doors | | No | |
| Shredded stalks, hay, corn, bran | Hay chute | Yes | Fair | Drive well. |
| Cornstalks, hay, silage | Hay chute | No | No | Drive well. |
| Cornstalks, hay, oats, corn | Doors, windows | No | Fair | Spring. |
| Cornstalks, hay, corn, oats, bran | Doors, windows | Yes | Yes | Tubular well. |
| Cornstalks, timothy hay | Doors, windows | Yes | Yes | Spring. |
| Cornstalks, hay, corn meal | Doors, windows | Yes | Yes | Spring. |
| Cornstalks, hay, silage, corn | Doors, windows | Yes | Fair | Spring. |
| Corn, hay, silage, oats, bran | Doors, windows | Fair | No | Tubular well. |
| Corn, silage, cottonseed, oats | Doors, windows | Yes | Fair | Tubular well. |

## INSPECTION OF CITY MILK SUPPLY.

| Name. | Health of herd and its protection. | Cleanliness. | Construction and care of utensils. | Health of employes and manner of milking. | Handling the milk. | Total. | Sanitary conditions. | Quality of milk. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Per cent butter fat. | Lactometer. | Total solids. | Solids not fat. |
| **Benton Harbor, January:** | | | | | | | | | | | |
| Chas. Warren & Son | 95 | 91 | 86 | 92 | 87 | 451 | Good | ..... | ..... | ..... | ..... |
| W. T. Burkes | 75 | 75 | 75 | 88 | 81 | 394 | Poor | ..... | ..... | ..... | ..... |
| J. L. Jones | 94 | 90 | 90 | 92 | 93 | 459 | Good | ..... | ..... | ..... | ..... |
| Chas. Warren | 90 | 90 | 85 | 90 | 90 | 445 | Medium | ..... | ..... | ..... | ..... |
| **Edwardsburg, January:** | | | | | | | | | | | |
| Fred Lee | 92 | 91 | 88 | 96 | 92 | 459 | Good | 5 | 30 | 13.5 | 8.5 |
| **Hartford, January:** | | | | | | | | | | | |
| W. Penwell | 89 | 86 | 90 | 92 | 87 | 444 | Medium | ..... | ..... | ..... | ..... |
| Frank Lammon | 90 | 85 | 83 | 90 | 85 | 443 | Medium | ..... | ..... | ..... | ..... |
| **Northville, January:** | | | | | | | | | | | |
| L. B. Reynolds | 73 | 76 | 80 | 83 | 75 | 387 | Poor | 4.2 | 31 | 12.79 | 8.59 |
| W. L. B. Clark | 80 | 80 | 80 | 80 | 80 | 400 | Medium | 3.2 | 31.5 | 11.84 | 8.64 |
| C. Benton | 85 | 88 | 88 | 85 | 85 | 431 | Medium | 3.5 | 32.5 | 12.32 | 8.82 |
| **Paw Paw, January:** | | | | | | | | | | | |
| E. F. Bilsborrow | 98 | 94 | 95 | 91 | 99 | 477 | Excellent | 5.0 | 32 | 14 | 9 |
| W. G. Barber | 97 | 92 | 90 | 94 | 90 | 463 | Good | ..... | ..... | ..... | ..... |
| **Royal Oak, January:** | | | | | | | | | | | |
| Fred C. Warner | 63 | 70 | 60 | 90 | 62 | 345 | Poor | 4.0 | 32 | 12.8 | 8.8 |
| **St. Joseph, January:** | | | | | | | | | | | |
| Will T. Day | 93 | 91 | 85 | 95 | 87 | 451 | Good | ..... | ..... | ..... | ..... |
| F. R. Ritcher | 90 | 83 | 85 | 92 | 85 | 435 | Medium | ..... | ..... | ..... | ..... |
| Fred Allen | 90 | 85 | 85 | 92 | 90 | 442 | Medium | ..... | ..... | ..... | ..... |
| Wm. Carpenter | 93 | 91 | 85 | 93 | 90 | 452 | Good | ..... | ..... | ..... | ..... |
| L. M. Lightner | 91 | 87 | 85 | 92 | 90 | 445 | Medium | ..... | ..... | ..... | ..... |
| Ed. Doyle | 92 | 88 | 87 | 90 | 87 | 444 | Medium | ..... | ..... | ..... | ..... |
| **White Pigeon, January:** | | | | | | | | | | | |
| Mrs. L. Weaver | 80 | 80 | 80 | 90 | 80 | 410 | Poor | ..... | ..... | ..... | ..... |
| A. H. Potts | 83 | 85 | 85 | 91 | 88 | 432 | Medium | ..... | ..... | ..... | ..... |
| **Coldwater, February:** | | | | | | | | | | | |
| Neal & Angevine | 100 | 98 | 94 | 95 | 97 | 97 | Excellent | 4.8 | 30 | 13.26 | 8.46 |
| Byers & Barnes | 97 | 89 | 90 | 95 | 94 | 465 | Good | 4.1 | 33 | 13.17 | 9.07 |
| Wm. Wager | 82 | 74 | 80 | 90 | 88 | 414 | Medium | 3.4 | 29 | 11.33 | 7.93 |
| Clisbie & Fletcher | 88 | 85 | 85 | 90 | 87 | 435 | Medium | 3.4 | 33.5 | 12.48 | 9.08 |
| **Jonesville, February:** | | | | | | | | | | | |
| C. E. Baird | 90 | 85 | 85 | 90 | 90 | 440 | Medium | 4 | 34 | 13.2 | 9.2 |
| C. M. Bliss | 84 | 77 | 82 | 90 | 85 | 418 | Poor | 4.3 | 32.5 | 13.26 | 8.96 |
| **Pontiac, February:** | | | | | | | | | | | |
| J. E. Hetsch | 90 | 90 | 90 | 90 | 90 | 450 | Good | 4.9 | 34 | 14.38 | 9.48 |
| A. M. Buttler | 85 | 85 | 88 | 90 | 85 | 433 | Medium | 4.4 | 32.5 | 13.4 | 9 |
| Chas. Bartlett | 89 | 91 | 98 | 98 | 95 | 471 | Good | 5.1 | 34 | 14.62 | 9.52 |
| R. Bartlett & Son | 81 | 73 | 95 | 95 | 88 | 432 | Medium | 5 | 33.5 | 14.37 | 9.37 |
| G. C. Callow | 85 | 81 | 91 | 90 | 85 | 432 | Medium | 4.5 | 35 | 14.15 | 9.65 |
| C. B. Warren | 73 | 88 | 93 | 88 | 83 | 425 | Medium | 5.6 | 34 | 15.22 | 9.62 |
| M. E. Young | 85 | 82 | 77 | 90 | 73 | 407 | Medium | 3.8 | 33.5 | 12.93 | 9.13 |
| K. L. Grove | 88 | 89 | 92 | 94 | 96 | 459 | Good | 4 | 33.5 | 13.17 | 9.17 |
| Steven Nott | 95 | 96 | 98 | 98 | 95 | 482 | Excellent | 4.5 | 33 | 13.65 | 9.15 |

# STATE ANALYST'S REPORT.

Lansing, Mich., June 30, 1909.

Hon. A. C. Bird, State Dairy and Food Commissioner, Lansing, Mich.:

Dear Sir:—I beg leave to submit herewith the results in substance of the work of the Department Laboratory for the fiscal year ending June 30, 1909.

During this period there have been examined in the laboratory 1,410 regular samples of food products, of which 421 have been condemned as adulterated or not in conformity with the Statute. In addition to these, 580 samples of butter have been analyzed, which butter was submitted from the samples taken at the monthly educational scoring tests conducted by the dairy division of this department.

### THE GRAND HOTEL MATTER.

The Association of State and National Food & Dairy Departments met for its annual meeting in August, 1908, at Mackinac Island, this State, and one of the most successful and enthusiastic meetings ever held by the association was held in the above month within the confines of this State. The pleasure of the meeting, however, was marred by an outbreak of illness among the delegates and their families early in the session, which condition was the cause of an official investigation by this department, which was reported October 5, 1908, as follows:

## REPORT.

October 5, 1908.

Hon. A. C. Bird, Dairy and Food Commissioner, Lansing, Michigan:

My Dear Sir:—I beg leave to submit herewith results of the investigation into the causes of the epidemic prevalent at the Grand Hotel at Mackinac Island during the convention of the Association of State and National Food and Dairy Departments in the week of August 4, of this year.

So many delegates and members of their families were stricken with bowel trouble during the convention and particularly on August 5, that the writer was directed by you to make an investigation into the causes. Dr. W. Bigelow, Chief Division of Foods, Mr. W. G. Campbell, Chief Food and Drug Inspector, U. S. Government) and Dr. C. H. Irion, President of the Louisiana Board of Health accompanied the writer. Inspection of the kitchen and grounds surrounding the Grand Hotel was made during the noon hour. Later in the same day the matter was referred

to Mr. G. M. Dame and the entire matter placed in his hands for investigation. A second and more detailed investigation was made by Mr. Dame. Without discussing the findings it may be sufficient to say that Mr. Dame immediately notified the management to make at once the following improvements. All windows in the kitchen and serving room to be rescreened, special attention being given to 17 windows and four doors where the screens in places were damaged. These were ordered replaced by new ones. A general cleaning up of the fish and poultry rooms and the rejection of some stocks of meats then on hand. The building of a new meat cutting room where meats and poultry are prepared for the kitchen, which is to be well ventilated and extra precaution taken with regard to flies. A general cleaning up of the court adjacent to the kitchen and prompt removal of the garbage.

The above changes were imperative in order to remedy conditions found by Mr. Dame. Mr. Dame then began an investigation of the water supply and on this investigation Mr. W. C. Campbell and the writer accompanied him. From the examination made at this time it became apparent that a thorough study and investigation of the water supply at Mackinac Island were desirable and Mr. Dame continued his investigations during the entire month of August. Regarding the water supply he found and reported the following: The intake pipe supplying the Grand Hotel extends 200 feet from the shore line of the Straits of Mackinac. The outer end of this pipe dips into eight feet of water. The main sewer extends into the water from the shore line about 165 feet and dips into a depth of 8 feet of water. The distance from the outlet of sewer to the intake of water is approximately 540 feet. The sewer being 540 feet east of the intake pipe. The trend of the outlet of the sewer is practically east. The trend of current in the Straits of Mackinac the greater part of the time is to the eastward, but when the wind blows from points from the northwest to southeast the current of the Straits has been to the westward, as on August 26 the direction of the wind was east by southeast, velocity 24 miles per hour, and the current in the Straits on the south side of the island was to the west, clearly discernable to the eye and at this particular time the sewage from the outlet of the main sewer was plainly noticeable by the discoloration of the water up to and for a distance of 300 feet beyond the intake of the water pipe which supplies the Grand Hotel. There is also on the south side of the island a 16 inch sewer which empties into the Straits on the west side of the city and on the above date mentioned the discoloration of the water was plainly noticeable from this sewer to the intake of water pipe which supplies the Grand Hotel, which is distant about 1,600 feet. After ascertaining the above conditions Mr. Dame forbid the use of any water from the pumping station for drinking purposes on the tables or by the help at the hotel. Continuing Mr. Dame adds that on August 5, a brisk northerly wind was blowing all day and basing his statements on the investigation of August 26, he reports that in his opinion a considerable of the disturbance caused on August 5, must have been due to the water supply. At the time of his inspection on August 26, seven samples of water were taken by him and submitted for investigation to the laboratory. Three of these samples were condemned as contaminated. The sample taken from

the tap at the Chippewa Hotel, a sample taken at the pumping station that supplies the Grand Hotel and a sample taken from the tap in the Grand Hotel where water bottles were filled for table use. The following were found above suspicion: A sample taken from the spring from which water was obtained for drinking purposes at the Grand Hotel after August 5, on which date the authorities at the Grand Hotel were cautioned against using the water from the pumping station. A sample taken at the city water works station and some taken at the spring on the west side of the island and a sample taken in the Murray Hotel.

It is apparent from the results of the investigation that contaminated water, unwholesome fish and a general lack of proper sanitary kitchen and food dispensing environments were responsible for the prevailing epidemic. While it is unfortunate that these conditions were not apparent to us earlier in the year, yet I think you will agree that it is very fortunate that an investigation was taken up at the time it was. Permit me to say further that on Mr. Dame's second visit to the island shortly following August 5, he reports that the management of the Grand Hotel had complied to the letter with every suggestion made by us while there, and by Mr. Dame later, and that they seem very desirous of doing everything in their power to put the conditions above reproach. Mr. Dame is to be congratulated on his thoroughness in this investigation.

Very truly yours,
FLOYD W. ROBISON,
State Analyst.

## CITY MILK INSPECTION.

Permit me to direct your attention particularly to Bulletin 164, published in April, 1909, dealing with the inspection of milk taken from the retail milk supply of the cities of Lansing, Grand Rapids, Benton Harbor, Jackson, Menominee, Bay City and Saginaw. You will recall that the principal object of these daily inspections was for the purpose of ascertaining the true condition, day after day, of the milk sold at retail in these various cities, bearing in mind especially the cleanliness and general sanitary condition of the product. It was of course hoped at the same time, that this information placed in the hands of the milk dealers would result in an effort on their part to improve the condition of the milk. The results of the work plainly show that this inspection has accomplished already a great deal of good in improving the milk supply of these various cities. This line of work is worthy of the Department's best efforts and as the finances of the department will permit, it would seem advisable to extend this work as rapidly as possible. I am, however, conversant with the fact that with the limited appropriation which the department has, a detailed inspection throughout the year of the milk in many of the cities is impossible and it seems to me that the municipalities themselves should be encouraged to provide milk inspectors, whose duties will require them to make daily examinations of the milk. The persons filling these positions should be young

men who have had some considerable training and who understand the chemistry and bacteriology of milk quite thoroughly. This would mean practically men who have either completed the college course or who have completed some special course fitting them for this work. To be more specific, the kind of an inspection that is needed of the city milk supply is what might be properly termed a laboratory inspection, and to my mind, this is the only form of inspection which will work permanent good in the community.

I might say in addition, that the conditions generally throughout the country are undergoing gradual improvement and it should be a matter of considerable satisfaction to us all that the undesirable conditions which surrounded the milk industry a few years ago are being changed for the better. It would indeed seem strange if the continual hammering of experiment station workers; farmers' institute workers and food officials, etc., should not ultimately work permanent good and we find when we work into the matter beneath the surface, that vast progress has been made in the interests of the consumer. It is unfortunate that from time to time, even yet, misinformed and sometimes overzealous, but without doubt well-meaning individuals, should place a picture before the public eye, showing merely the disgusting and undesirable features of milk production without conveying likewise to the consumer the fact that vast and rapid progress is being made in the betterment of these conditions. Such individuals while working with the interest of the consumer at heart, are really conveying nothing to the consumer and yet at the same time, are arraying against the cause of cleaner and more wholesome milk products, the farmer and dairyman who realize from actual experience that there are difficulties in the way of accomplishing the dreams of the most fastidious of people. The campaign is in its infancy yet despite the rapid progress which has been made, and it is not in a condition such that we can afford to loose the support of the milk producers themselves, and so I say, it is unfortunate, that from time to time ill-advised statements appear in the public press and on the lecture platform which serve to disturb the spirit of co-operation which exists and without which rapid progress cannot be made. I would not criticise too severely on this point, but merely caution that the public, or any such who may be reached by this paper, will carefully consider the matter, for I do realize that agitation even reaching sometimes beyond what may be actual proof, is provocative of much good.

### COW TESTING ASSOCIATION.

From July to September, 1908, the Department published bulletins 155 to 157 dealing with the records of four co-operative Cow Testing Associations, organized with the assistance of the Dairy and Food Department, of which one was in its third year of operation and the other three in the second year. You will recall that these associations were organized by this Department under the direction of the Deputy Commissioner, Mr. Lillie, and with the special attention of Mr. Helmer Rabild, then an inspector in this Department, and were at the time, the first associations of this nature organized in the United States. They were copied after the style of cow testing associations in operation in Denmark and have been a great stimulant to the dairy industry in

the sections where they are operated. This work is of untold benefit to the dairymen and is a phase of the department work which should be pushed energetically. Commercial considerations alone are not what prevail among these associations, although that may be the point to which attention is specially directed, but better feeding, better breeding, better marketing milk products and general improvements of the sanitary conditions surrounding the dairy business are the natural and immediate results of this work. It is to be regretted that the Department lost so efficient and valuable a man as Mr. Rabild and yet having been called into a field of possibly greater usefulness in the Department of Agriculture, he is still available in this work.

### ICE CREAM INSPECTION.

The Legislature of 1908 and 1909 passed an act requiring the inspection of ice cream manufactories and standardizing the product. This law took immediate effect upon the adjournment of the legislature and the Department immediately began work to put the provisions of the law into operation. During the time intervening from the adjournment of the legislature until the 1st of July, 1909, 284 samples of ice cream were analyzed in the Department laboratory, of which number 95 were condemned as below the standard set by law. There was some complaint from certain sources that the requirements of the law were unnecessarily harsh in that of fat, the requirement set, to-wit, 12%. The results of the laboratory analyses show, however, that a substantial number of ice cream manufacturers were producing ice cream at the time the law went into effect, which easily came above the requirements of the law, and it seems, what so many were actually doing of their own free will, could hardly be construed as severe to the remainder. Some question has been raised likewise as to the accuracy with which the percentage of butterfat can be determined and I will say in this respect that that is a matter of laboratory detail which has been worked out in this laboratory without any difficulty whatever.

### EDUCATIONAL SCORING TESTS.

Under the immediate supervision of the Deputy Commissioner, educational scoring tests have been conducted during eleven of the twelve months of the current year. Without discussing the results obtained in a general way from this work, I will say that the laboratory has attempted, by analysis, to keep somewhat close check on the nature of the product put out by the different creameries throughout the state. We have used every precaution to secure fair samples of this butter submitted and have subjected it to a careful analysis in the laboratory to determine the percentage of butterfat and the percentage of over-run in the samples. This was undertaken at the beginning to center the attention of the butter makers upon the question of food value, quality and workmanship in the product which were the points especially sought in the commercial scoring of the product. We have taken occasion to from time to time warn creameries producing a product below the normal standard of quality and this has been done in every instance where our analysis reveals these undesirable conditions.

MEAT INSPECTION.

An examination of quite a number of samples of meats sent in, some of them voluntarily, during the past year, warrants us in stating decidedly that some form of meat inspection should be provided the people of the State of Michigan. The large packing houses, such as in Chicago, Detroit, etc., are under government supervision, but local butchers have no restrictions imposed upon them whatsoever except such as the vigilance of this department requires. If it were possible to provide sufficient funds so that capable, trained meat inspectors could be employed in this department, I am confident that much good could be accomplished and much greater security thrown around this all-important article of food. The fact that the State had capable trained men who continually made the rounds of the State and might appear at any given slaughter house at any time would have a wholesome effect in improving the conditions under which animals are slaughtered and in raising the standard of meats that are slaughtered. We find evidence, from time to time, that carcasses of animals that are diseased have found their way into the food supply. I think even a word calling attention to this matter is sufficient to demonstrate how thoroughly imperative it is that steps be taken to provide inspection in this matter. This would necessitate a slight increased appropriation for the payment of salary and traveling expenses of these inspectors, but the wisdom of such a step, to my mind, will appeal readily to the legislature.

RESIGNATION.

Early in the spring of 1909, the department laboratory was seriously hampered by the resignation of Miss Dorothea Moxness, who left to take up similar work under an appointment from the Norwegian Government in her native city, Trondhjem, Norway. Miss Moxness is a pains-taking, competent and thoroughly trustworthy young woman, well grounded in the fundaments of chemistry and withal, a person the laboratory has sorely missed. Conscientiousness and ability are factors which mean so much in official work, especially the nature of that which comes to this laboratory and it is in these points that I pay a special tribute to Miss Moxness.

The writer has kept in close touch during the past year with the work as carried on by the Federal Government. You will bear in mind that I hold a special appointment under the civil service in the Bureau of Chemistry, and because of that appointment have collaborated with the National Bureau of Chemistry on several occasions during the past year. The expenses incident to this have in each instance been borne by the government and co-operation in this work has rendered me all the more efficient for the work within the boundaries of this state.

The work of the Department laboratory has been divided during the past year and operated in the following manner. The regular analyses of food products have been placed mainly in the hands of the Assistant Chemist, Mr. L. H. Van Wormer; the commercial feed stuffs have been analyzed mainly by Mr. F. S. Dunks while the dairy products, milk, butter, oleomargarine, etc., have been examined by Mr. W. E. Robison assisted by Miss Mabel Mosher. In addition to this, the labora-

tory assistant, Mr. N. L. Mattice, has assisted in various stages of the laboratory work and likewise assisted in the special line of experiments on the subject of preservatives which culminated in the published bulletin during the present year.

A comprehensive card index system of keeping records is now in full operation in the laboratory, together with an index of manufacturers and a library index system, which simplifies very much the laboratory reference work.

I have called the attention in previous reports to the fact that the State Library is provided with practically no reference facilities for the various lines of scientific work which the State is now pursuing. It seems to us that the legislature would readily see the need of equipping the State Library with the scientific reference books necessary for the carrying on properly of our work. An appropriation to our mind of $1,000 per year would amply provide for this and prevent the expenditure of some considerable money in consulting libraries at a distance as well as in increasing the efficiency of the state departments.

May I ask your indulgence for this somewhat lengthy report and commending it to your earnest consideration, I beg to remain,

Yours truly,
FLOYD W. ROBISON,
State Analyst.

# ANALYSES.

## SUMMARY.

| Article. | Total. | Not found adulterated. | Found adulterated. |
|---|---|---|---|
| Allspice | 1 | 1 | 0 |
| Baking powder | 3 | 3 | 0 |
| Buckwheat flour | 43 | 34 | 9 |
| Butter | 95 | 49 | 46 |
| Candy | 1 | 1 | 0 |
| Canned tomatoes | 1 | 0 | 1 |
| Catsup | 3 | 1 | 2 |
| Celery salt | 2 | 2 | 0 |
| Cheese | 4 | 3 | 1 |
| Chicory | 1 | 1 | 0 |
| Cocoas | 1 | 1 | 0 |
| Coffee | 3 | 3 | 0 |
| Colors | 1 | 1 | 0 |
| Corn (canned) | 2 | 1 | 1 |
| Corn syrup | 13 | 6 | 7 |
| Cream | 49 | 49 | 0 |
| Cream of tarter | 1 | 0 | 1 |
| Dried apples | 1 | 1 | 0 |
| Eggs | 1 | 0 | 1 |
| Evaporated eggs | 2 | 0 | 2 |
| Evaporated milk | 1 | 1 | 0 |
| Extracts | 95 | 38 | 57 |
| Flour | 2 | 2 | 0 |
| Honey | 2 | 2 | 0 |
| Ice Cream | 284 | 189 | 95 |
| Jellies, jams, etc | 18 | 7 | 11 |
| Lard | 7 | 4 | 3 |
| Maple syrup and maple sugar | 55 | 33 | 22 |
| Meat | 7 | 2 | 5 |
| Milk | 582 | 484 | 98 |
| Miscellaneous | 9 | 5 | 4 |
| Mustard | 7 | 3 | 4 |
| Mushrooms | 1 | 1 | 0 |
| Oils (edible) | 1 | 0 | 1 |
| Oleomargarine | 12 | 3 | 9 |
| Olive oil | 1 | 1 | 0 |
| Peas | 4 | 0 | 4 |
| Rice | 2 | 2 | 0 |
| Salmon | 1 | 1 | 0 |
| Seasoning for sausage | 1 | 1 | 0 |
| Soda | 1 | 1 | 0 |
| Spices | 37 | 27 | 10 |
| Succotash | 1 | 1 | 0 |
| Sugar (granulated) | 1 | 1 | 0 |
| Syrup | 4 | 2 | 2 |
| Tropical fruits | 1 | 1 | 0 |
| Turpentine | 1 | 0 | 1 |
| Vinegar | 27 | 12 | 15 |
| Water | 17 | 8 | 9 |
| Totals | 1,410 | 989 | 421 |

## ANALYSES OF SAMPLES.

### BAKING POWDER.

No. 13345, I-489. Sample of "Pure Cream Tartar Baking Powder." Jobber, McWilliams & Moore, Detroit. Contains alum and phosphate.

### BUCKWHEAT FLOUR.

No. 13086, S-223. Sample of "Buckwheat Flour" manufactured by Jellis, Stone & Co., Flint, Mich. Adulterated with wheat flour.

No. 13087, S-224. Sample of "Buckwheat Flour" manufactured by Peninsula Milling Co., Flint, Mich. Adulterated with wheat flour.

No. 13088, S-225. Sample of "Buckwheat Flour" manufactured by Jellis, Stone & Co., Flint, Mich. Adulterated with wheat flour.

No. 13103, N-500. Sample of "Buckwheat Flour" manufactured by Leipprandt Brothers, Pigeon, Mich. Adulterated with wheat flour.

No. 13143, N-515. Sample of "Buckwheat Flour" manufactured by Leipprandt Brothers, Pigeon, Mich. Adulterated with wheat flour.

No. 13194, S-247. Sample of Buckwheat Flour." Manufacturer, Jellis, Stone & Co., Flint. Adulterated with wheat flour.

No. 13476, N-540. Sample of "Buckwheat Flour." Manufacturer, Cecil G. Bradford & Co., Alpena. Contains added wheat flour.

No. 13569, N-542. Sample of "Buckwheat Flour." Manufacturer, Cecil G. Bradford & Co., Alpena. Contains added wheat flour.

No. 13573, N-546. Sample of "Buckwheat Flour." Manufacturer, Cecil G. Bradford & Co., Alpena. Contains added wheat flour.

### BUTTER.

No. 12917, S-194. Sample of "Butter." Dealer, August Pringnitz, Mount Clemens, Mich. Sample is renovated butter, not properly stamped.

No. 13020, O-57. Sample of "Butter" procured from Commercial Hotel, Lansing, Mich. Sample is oleomargarine.

No. 13084, N-497. Sample of "Butter." Dealer, Daniel S. Dunn, Bay City, Mich. Sample is oleomargarine.

No. 13128, N-505. Sample of "Butter." Dealer, W. R. Althouse, Vassar, Mich. Sample is oleomargarine.

No. 13150, S-230. Sample of "Butter." Dealer, Avanel C. Collver, Port Huron, Mich. Sample is oleomargarine.

No. 13154, S-235. Sample of "Butter" procured from American Hotel, Port Huron, Mich. Sample is oleomargarine.

No. 13176, I-464. Sample of "Butter." Dealer, George Beasley, 697 Michigan Ave., Detroit. Sample is oleomargarine.

No. 13183, S-245. Sample of "Butter." Dealer, Peter Winn & Winn, Kalamazoo, Mich. Sample is renovated butter.

No. 13208, S-249. Sample of "Butter." Dealer, Alonzo L. Hart, 168 Michigan Ave., Detroit. Sample is oleomargarine colored in imitation of yellow butter.

No. 13212, I-468. Sample of "Butter." Dealer, May Brady, 207 Second St., Detroit. Sample is renovated butter.

No. 13213, I-469. Sample of "Butter." Jobber, Alonzo L. Hart, 168 Michigan Ave., Detroit. Sample is oleomargarine colored in imitation of yellow butter and sold as butter.

No. 13214, I-470. Sample of "Creamery Butter." Jobber, Alonzo L. Hart, 168 Michigan Ave., Detroit. Sample is oleomargarine colored in imitation of yellow butter and sold as butter.

No. 13222, S-251. Sample of "Butter." Dealer, Ray M. Downing, Restaurant, 162 Cass Ave., Detroit. Sample is oleomargarine. No sign displayed.

No. 13223, S-252. Sample of "Butter." Dealer, Wm. TenEyck, 371 Michigan Ave., Detroit. Sample is oleomargarine, sold for butter.

No. 13224, S-253. Sample of "Butter." Dealer, Green & Son, 405 Michigan Ave., Detroit. Sample is oleomargarine, sold for butter.

No. 13225, S-254. Sample of "Butter." Dealer, Burt Brown, 424 Michigan Ave., Detroit. Sample is oleomargarine, sold for butter.

No. 13250. S-255. Sample of "Butter." Jobber, Miss Margaret Brennan, 146 First St., Detroit. Sample is oleomargarine colored in imitation of yellow butter and sold as butter.

No. 13251, S-256. Sample of "Butter." Dealer, George Beasley, 697 Michigan Ave., Detroit. Sample is oleomargarine, sold as butter.

No. 13275, S-257. Sample of "Country Roll." Dealer, John E. King. 63 Gratiot Ave., Detroit. Sample is oleomargarine, uncolored, sold as "country roll." No formula slip in package nor stamp on package.

No. 13280, S-262. Sample of "Butter." Jobber, Alonzo L. Hart, 168 Michigan Ave., Detroit. Sample is oleomargarine colored in imitation of yellow butter and sold as butter.

No. 13306, S-266. Sample of "Butter." Dealer, Chas. S. Mauer, 625 Gratiot Ave., Detroit. Sample is oleomargarine, sold for butter.

No. 13308, S-268. Sample of "Butter." Dealer, Anthony Scheuer, 368 Gratiot Ave., Detroit. Sample is oleomargarine sold as butter.

No. 13321 S-269. Sample of "Butter." Jobber, Alonzo L. Hart, 168 Michigan Ave., Detroit. Oleomargarine colored in imitation of yellow butter and sold as butter.

No. 13323, S-271. Sample of "Butter." Jobber, Ohio Butter and Egg Co., 424 Michigan Ave., Detroit. Oleomargarine colored in imitation of yellow butter.

No. 13342, I-486. Sample of "Butter." Jobber, Alonzo L. Hart, 168 Michigan Ave., Detroit. Sample is oleomargarine, colored in imitation of and sold for butter.

No. 13353, S-273. Sample of "Butter." Dealer, M. J. Cook, Restaurant, 206 Hart St., Detroit. Sample is oleomargarine colored in imitation of yellow butter.

No. 13387, I-490. Sample of "Butter." Dealer, I. N. Daubmire, 319 Woodward Ave., Detroit. Sample is oleomargarine colored in imitation of and sold for butter.

No. 13388, I-491. Sample of "Butter." Jobber, H. P. Cohen, Cadillac Square, Detroit. Sample is oleomargarine colored in imitation of yellow butter and sold as butter.

No. 13391, S-278. Sample of "Butter." Dealer, Hotel Detroit, Corner

Jefferson Ave. and Third St., Detroit. Sample is oleomargarine, uncolored, but sold as butter. No sign in dining room.

No. 13392, S-279. Sample of "Butter." Jobber Alonzo L. Hart, 168 Michigan Ave., Detroit. Oleomargarine colored in imitation of yellow butter and sold for butter.

No. 13465, S-291. Sample of "Butter." Jobber, Alonzo L. Hart, 168 Michigan Ave., Detroit. Sample is oleomargarine colored in imitation of yellow butter and sold for butter.

No. 13472, S-298. Sample of "Butter." Jobber, Alonzo L. Hart, 168 Michigan Ave., Detroit. Sample is oleomargarine colored in imitation of yellow butter and sold for butter.

No. 13479. Unofficial. Sample of "Butter." Sample is oleomargarine.

No. 13485. Unofficial. Sample of "Butter." Sample is oleomargarine, uncolored, sold as butter.

No. 13486. Unofficial. Sample of "Butter." Sample is oleomargarine, uncolored, sold for butter.

No. 13487. Unofficial. Sample of "Butter." Sample is oleomargarine, uncolored, sold for butter.

No. 13502, I-496. Sample of "Butter." Dealer, Mrs. C. J. Sessions, Boarding House, 216 S. Ingalls St. Ann Arbor. Sample is oleomargarine.

No. 13509, S-302. Sample of Butter." Dealer. Robert L. Watson, 23 Bridge St., Grand Rapids. Sample is oleomargarine sold for butter.

No. 13510, S-304. Sample of "Butter." Dealer, Robert L. Watson, 23 Bridge St., Grand Rapids. Sample is oleomargarine sold for butter.

No. 13511, S-305.—Sample of "Butter." Dealer, Robert L. Watson, 23 Bridge St., Grand Rapids. Sample is oleomargarine sold for butter.

No. 13515, I-500. Sample of "Butter." Jobber, Alonzo L. Hart, 168 Michigan Ave., Detroit. Sample is oleomargarine colored in imitation of yellow butter.

No. 13517, I-503. Sample of "Butter." Dealer, Cook House, Ann Arbor. Sample is oleomargarine.

No. 13526, S-307. Sample of "Butter." Dealer, Wm. S. Maxam, 118 Portage St., Kalamazoo. Sample is renovated butter.

No. 13527, L-905. Sample of "Butter." Dealer, Wm. S. Maxam, 118 Portage St., Kalamazoo. Sample is renovated butter.

No. 13664, I-512. Sample of "Butter." Jobber, H. P. Cohen, Cadillac Square, Detroit. Sample is renovated butter.

No. 13665, I-513. Sample of "Butter." Jobber, H. P. Cohen, Cadillac Square, Detroit. Sample is oleomargarine colored in imitation of yellow butter.

CATSUP.

No. 12871, S-185. Sample of "Catsup" manufactured by Virginia Pure Food Co., Baltimore, Md. Label deceptive. Contains large amount of starch.

No. 13012, I-447. Sample of "Tomato Catsup." Jobbers, Dueweke Grocery Co., Detroit. Contains starch and artificial color. No manufacturer's name on label.

CANNED CORN.

No. 12936, S-198. Sample of "Schuyler Brand Corn" manufactured by Hemmingway Preserving Co., Auburn, N. Y. Contains saccharine.

CHEESE.

No. 13153, S-233. Sample of "Neufchatel Cream Cheese." Jobber, American Butter & Cheese Co., Detroit. Sample is not a cream cheese.

CORN SYRUP.

No. 13155, S-236. Sample of "Corn Syrup (Crescent Brand.)" Manufacturer, American Maize Products Co., Roby, Indiana. Not properly labeled.

No. 13179, S-241. Sample of "Corn Syrup (Golden Grain Brand)." Manufacturer, Berry-Maybrun Co., Chicago. Not properly labeled.

No. 13237. Unofficial. Sample of "Glucose Mixture." Not properly labeled.

No. 13629, I-504. Sample of "Cream of Corn Syrup." Jobber, G. A. Alderton & Co., Saginaw. Not properly labeled.

No. 136623, S-320. Sample of "Corn Syrup (Red Star Brand.)" Jobber, Judson Grocery Company, Grand Rapids. Type not of proper size.

No. 13713, M-5. Sample of "XXX Corn Syrup." Manufacturer, Detroit Speciality Co., Detroit. Formula not in proper size type.

No. 13716, I-517. Sample of "Scanlon's XXXX Corn Syrup." Manufacturer, Western Reserve Syrup Co., Cleveland O. Formula not in proper size type.

CREAM OF TARTAR.

No. 13034, S-211. Sample of "Cream of Tartar" manufactured by California Tartar Co., San Francisco, Cal. Sample is a mixture of corn starch, alum and phosphate of lime, with some cream of tartar.

EGGS.

No. 13021. Unofficial. Sample of "Eggs." Sample decomposed.

EVAPORATED EGGS.

No. 13431. Unofficial. Sample of "Evaporated Eggs." Dessicated eggs, decomposed and unwholesome.

No. 13505. Unofficial. Sample of "Evaporated Eggs." Sample is unwholesome.

EXTRACTS.

No. 12849, S-161. Sample of "Pineapple Flavor (White Cap Brand)," manufactured by The Heekin Spice Co., Cincinnati, O. Not properly labeled.

No. 12850, S-162. Sample of "Banana Flavor (White Cap Brand)," manufactured by The Heekin Spice Co., Cincinnati, O. Not properly labeled.

No. 12851, S-163. Sample of "Strawberry Flavor (White Cap Brand),"

manufactured by The Heekin Spice Co., Cincinnati, O. Not properly labeled.

No. 12852, S-164. Sample of "Orange Flavor (White Cap Brand)," manufactured by The Heekin Spice Co., Cincinnati, O. Not up to standard.

No. 12717, I-434. Sample of "Extract of Vanillin & Coumarin (P. & S. Brand)." manufactured by The Frank Tea & Spice Co., Cincinnati, O. Not properly labeled.

No. 12855, S-169. Sample of "Maple Flavoring" manufactured by Jennings Flavoring Extract Co., Grand Rapids, Mich. Not properly labeled.

No. 12856, S-170. Sample of "Uneek Vanillin Sugar," manufactured by Verona Chemical Co., Newark, N. J. Label deceptive.

No. 12857, S-171. Sample of "Artificial Pineapple Flavoring," manufactured for Corbin, Sons & Co., Chicago. Not properly labeled.

No. 12858, S-172. Sample of "Artificial Raspberry Flavoring," manufactured for Corbin, Sons & Co., Chicago, Ill. Not properly labeled.

No. 12859, S-173. Sample of "Artificial Strawberry Flavoring," manufactured for Corbin, Sons & Co., Chicago, Ill. Not properly labeled.

No. 12864, S-179. Sample of "Kitchen Queen Artificial Strawberry Flavor," manufactured by Interstate Chemical Co., Baltimore, Md. Not properly labeled.

No. 12865, S-180. Sample of "Kitchen Queen Artificial Pineapple Flavor" manufactured by Interstate Chemical Co., Baltimore, Md. Not properly labeled.

No. 12873, S-187. Sample of "Artificial Pineapple Flavor" manufactured by J. R. Watkins Medical Co., Winona, Minn. Not properly labeled.

No. 12874, S-188. Sample of "Artifical Strawberry Flavor" manufactured by J. R. Watkins Medical Co., Winona, Minn. Not properly labeled.

No. 12875, S-189. Sample of "Artificial Banana Flavor" manufactured by J. R. Watkins Medical Co., Winona, Minn. Not properly labeled.

No. 12900, N-489. Sample of "Banana Flavor" manufactured by Patterson Brothers, Mt. Pleasant, Mich. An imitation.

No. 12901, N-490. Sample of "Banana Extract" manufactured by Star Extract Works, New York. An imitation extract.

No. 12921, U-241. Sample of "Artificial Strawberry Extract" manufactured by Van Duzer Extract Co., New York. Not properly labeled.

No. 12922, U-242. Sample of "Artifical Raspberry Extract" manufactured by Van Duzer Extract Co., New York. Not properly labeled.

No. 12923, U-243. Sample of "Artificial Pineapple Extract" manufactured by Van Duzer Extract Co., New York. Not properly labeled.

No. 12924, U-244. Sample of "Artificial Peach Extract" manufactured by Van Duzer Extract Co., New York. Not properly labeled.

No. 12969, S-190. Sample of "Pineapple Extract (Gold Arrow Brand)" manufactured by The Newton Tea & Spice Co., Cincinnati, Ohio. Not properly labeled.

No. 12970, S-191. Sample of "Banana Extract (Gold Arrow Brand)" manufactured by The Newton Tea & Spice Co., Cincinnati, Ohio. Not properly labeled.

No. 12971, S-192. Sample of "Extract of Vanilla and Vanillin (Gold Arrow Brand)" manufactured by The Newton Tea & Spice Co., Cincinnati. An imitation product, not properly labeled.

No. 12715, I-432. Sample of "Peerless Lemon Extract" manufactured by Frederick K. Sterns, Detroit. Below standard.

No. 12863, S-178. Sample of "Extract of Lemon" manufactured by Saginaw Valley Drug Co., Saginaw, Mich. Below standard.

No. 12918, U-238. Sample of "Lemon Flavor" manufactured by Kenwood Preserving Co., Chicago, Ill. Below standard.

No. 12920, U-240. Sample of "Lemon Flavoring" manufactured by Kenwood Preserving Co., Chicago. Below standard.

No. 12844, S-156. Sample of "Vanilla Extract" manufactured by The Heekin Spice Co., Cincinnati, O. Contains foreign color.

No. 12866, S-181. Sample of "Vanilla" manufactured by Interstate Chemical Co., Baltimore, Md. Not pure vanilla extract.

No. 12872, S-186. Sample of "Vanilla Flavor" manufactured by J. R. Watkins Medical Co., Winona, Minn. Not a true vanilla flavor.

No. 12919, U-239. Sample of "Vanilla Flavor" manufactured by Kenwood Preserving Co., Chicago, Ill. Not pure vanilla extract.

No. 13024, N-496. Sample of "Extract Lemon (Royal Brand)." Manufacturer, A. B. Judson Co., Detroit. Below standard in lemon oil.

No. 13091. Unofficial. Sample of "Vanilla." Not a pure vanilla.

No. 13136, N-508. Sample of "Lemon Flavoring Extract." Manufacturer, Northrup, Robertson & Carrier Co., Lansing. Below standard in oil.

No. 13182, S-244. Sample of "Dr. Clark's Vanilla Flavor." Manufacturer, Union Extract Co., Kalamazoo. Not pure vanilla.

No. 13242. Unofficial. Sample of "Substitute for Strawberry Flavoring." An imitation strawberry flavor, improperly labeled.

No. 13243, W-291. Sample of "Extract of Vanilla (Standard Brand)." Manufacturer, Reid, Henderson & Co., Chicago. Sample is not a vanilla extract. Improperly labeled.

No. 13276, S-258. Sample of "Extract of Vanilla and Coumarin." Manufacturer, A. B. Judson Co., Detroit. Not properly labeled as a mixture or compound.

No. 13278, S-260. Sample of "Extract of Vanilla and Vanillin." Manufacturer, Horton, Cato Mfg. Co., Detroit. Not properly labeled as a mixture or compound.

No. 13317, I-482. Sample of "Extract of Pure Lemon (Sweet Violet Brand)." Manufacturer, Hall-Whitney Mfg. Co., Binghamton, N. Y. Below standard in oil of lemon and citraldehyde. Not up to U. S. P. requirements.

No. 13318, I-483. Sample of "Compound Lemon Flavor (Monogram Brand)." Manufacturer, Hall-Whitney Mfg. Co., Binghamton, N. Y. Improperly labeled.

No. 13319, I-484. Sample of "Compound Vanilla Flavor (Monogram Brand)." Manufacturer, Hall-Whitney Mfg. Co., Binghamton, N. Y. Not properly labeled.

No. 13339, S-274. Sample of "Compound Vanilla Flavor, Vanillin and Coumarin (Hosmer Brand)." Manufacturer, Royal Tea Co., Chicago, Illl. Not properly labeled.

No. 13340, S-275. Sample of "Compound Lemon Flavor (Hosmer Brand)." Manufacturer, Royal Tea Co., Chicago, Ill. Improperly labeled, contains no lemon oil.

No. 13343, I-487. Sample of "Vanilla Simulated (Oakdale Brand)." Manufacturer, The Empire Mfg. Co., Detroit. Contains coumarin; not properly labeled.

No. 13344, I-488. Sample of "Lemo (Oakdale Brand)." Manufacturer, The Empire Mfg. Co., Detroit. Not properly labeled.

No. 13447. W-314. Sample of "Vanilla Flavor." Manufacturer, S. Gumpert & Co., 205 West St., New York. Not a pure Vanilla extract. Contains coumarin and artificial color.

No. 13395, W-293. Sample of "Compound Vanillin Flavor (Priscilla Brand)." Manufacturer, Franklin MacVeagh & Co., Chicago. Not properly labeled.

No. 13396, W-294. Sample of "Terpeneless Lemon Flavor (Priscilla Brand)." Manufacturer, Franklin MacVeagh & Co., Chicago. A so-called terpeneless extract, below standard in citral.

No. 13399, W-297. Sample of "Vanillin and Coumarin (Priscilla Brand)." Manufacturer, Franklin MacVeagh & Co., Chicago. Not properly labeled.

No. 13531, S-309. Sample of "Artificial Pineapple Favoring (Jewel Brand)." Manufacturer, Jewel Tea Co., Chicago. Not properly labeled.

No. 13532, S-310. Sample of "Artificial Strawberry Flavoring (Jewel Brand)." Manufacturer, Jewel Tea Co., Chicago. Not properly labeled.

No. 13620, S-317. Sample of "Strawberry Flavoring Powder." Jobber, Geo. A. Parker, 720 Chestnut St., Philadelphia. An imitation flavor, not properly labeled.

No. 13659, S-326. Sample of "Vanilla and Vanilline." Manufacturer, Imperial Tea Co., Detroit. Not properly labeled.

No. 13714, I-515. Sample of Simulated Vanilla Flavor." Manufacturer, The Empire Mfg. Co., Detroit. An imitation extract, not properly labeled.

No. 13615, S-312. Sample of "Vanilla Flavoring (Acme Brand)." Jobber, Lemon & Wheeler Co., Grand Rapids. Not properly labeled as an imitation extract.

ICE CREAM.

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| No. 13938, S-344. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13941, S-347. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13944, S-350. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13945, S-351. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13948, S-354. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13949, S-355. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13957, L-910. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13976, W-325. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13989, N-564. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 13994, S-358. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 14007, L-918. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 14019, W-326. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 14021, W-328. | Sample of "Ice Cream." | Below standard in milk fat. |
| No. 14026, N-576. | Sample of "Ice Cream." | Below standard in milk fat. |

No. 14027, N-577. Sample of "Ice Cream." Below standard in milk fat.
No. 14028, N-578. Sample of "Ice Cream." Below standard in milk fat.
No. 14029, N-579. Sample of "Ice Cream." Below standard in milk fat.
No. 14031, N-581. Sample of "Ice Cream." Below standard in milk fat.
No. 14032, N-582. Sample of "Ice Cream." Below standard in milk fat.
No. 14034, N-584. Sample of "Ice Cream." Below standard in milk fat.
No. 14035, N-585. Sample of "Ice Cream." Below standard in milk fat.
No. 14036, S-368. Sample of "Ice Cream." Below standard in milk fat.
No. 14038, S-370. Sample of "Ice Cream." Below standard in milk fat.
No. 14039, S-371. Sample of "Ice Cream." Below standard in milk fat.
No. 14040, S-372. Sample of "Ice Cream." Below standard in milk fat.
No. 14044, S-376. Sample of "Ice Cream." Below standard in milk fat.
No. 14048, L-922. Sample of "Ice Cream." Below standard in milk fat.
No. 14051, L-925. Sample of "Ice Cream." Below standard in milk fat.
No. 14096, W-330. Sample of "Ice Cream." Below standard in milk fat.
No. 14097, W-331. Sample of "Ice Cream." Below standard in milk fat.
No. 14098, W-332. Sample of "Ice Cream." Below standard in milk fat.
No. 14102, N-587. Sample of "Ice Cream." Below standard in milk fat.
No. 14103, N-588. Sample of "Ice Cream." Below standard in milk fat.
No. 14104, N-589. Sample of "Ice Cream." Below standard in milk fat.
No. 14112, L-932. Sample of "Ice Cream." Below standard in milk fat.
No. 14114, S-379. Sample of "Ice Cream." Below standard in milk fat.
No. 14115, S-380. Sample of "Ice Cream." Below standard in milk fat.
No. 14124, M-1. Sample of "Ice Cream." Below standard in milk fat.
No. 14125, M-2. Sample of "Ice Cream." Below standard in milk fat.
No. 14126, M-3. Sample of "Ice Cream." Below standard in milk fat.
No. 14129, L-934. Sample of "Ice Cream." Below standard in milk fat.
No. 14130, L-935. Sample of "Ice Cream." Below standard in milk fat.
No. 14151, S-387. Sample of "Ice Cream." Below standard in milk fat.
No. 14157, G-1. Sample of "Ice Cream." Below standard in milk fat.
No. 14159, W-334. Sample of "Ice Cream." Below standard in milk fat.
No. 14161, W-336. Sample of "Ice Cream." Below standard in milk fat.
No. 14162, W-337. Sample of "Ice Cream." Below standard in milk fat.
No. 14176, M-66. Sample of "Ice Cream." Below standard in milk fat.
No. 14179, G-2. Sample of "Ice Cream." Below standard in milk fat.
No. 14180, G-3. Sample of "Ice Cream." Below standard in milk fat.
No. 14181, G-4. Sample of "Ice Cream." Below standard in milk fat.
No. 14182, G-5. Sample of "Ice Cream." Below standard in milk fat.
No. 14188, N-598. Sample of "Ice Cream." Below standard in milk fat.
No. 14189, M-29. Sample of "Ice Cream." Below standard in milk fat.
No. 14193, M-33. Sample of "Ice Cream." Below standard in milk fat.
No. 14196, M-36. Sample of "Ice Cream." Below standard in milk fat.
No. 14200, M-37. Sample of "Ice Cream." Below standard in milk fat.
No. 14202, M-39. Sample of "Ice Cream." Below standard in milk fat.
No. 14206, G-6. Sample of "Ice Cream." Below standard in milk fat.
No. 14208, G-7. Sample of "Ice Cream." Below standard in milk fat.
No. 14209, G-8. Sample of "Ice Cream." Below standard in milk fat.
No. 14217, W-343. Sample of "Ice Cream." Below standard in milk fat.
No. 14219, W-345. Sample of "Ice Cream." Below standard in milk fat.
No. 14220, W-346. Sample of "Ice Cream." Below standard in milk fat.
No. 14221. Unofficial. Sample of "Ice Cream." Below standard in milk fat.

No. 14223, N-602. Sample of "Ice Cream." Below standard in milk fat.
No. 14234, S-389. Sample of "Ice Cream." Below standard in milk fat.
No. 14236, O-1. Sample of "Ice Cream." Below standard in milk fat.
No. 14238, O-3. Sample of "Ice Cream." Below standard in milk fat.
No. 14239, O-4. Sample of "Ice Cream." Below standard in milk fat.
No. 14240, O-5. Sample of "Ice Cream." Below standard in milk fat.
No. 14241, O-6. Sample of "Ice Cream." Below standard in milk fat.
No. 14243, O-8. Sample of "Ice Cream." Below standard in milk fat.
No. 14245, O-10. Sample of "Ice Cream." Below standard in milk fat.
No. 14246, O-11. Sample of "Ice Cream." Below standard in milk fat.
No. 14247, O-12. Sample of "Ice Cream." Below standard in milk fat.
No. 14248, N-605. Sample of "Ice Cream." Below standard in milk fat.
No. 14252, L-943. Sample of "Ice Cream." Below standard in milk fat.
No. 14253, S-391. Sample of "Ice cream." Below standard in milk fat.
No. 14258, G-9. Sample of "Ice Cream." Below standard in milk fat.
No. 14263, W-349. Sample of "Ice Cream." Below standard in milk fat.
No. 14300, H-1190. Sample of "Ice Cream." Below standard in milk fat.
No. 14302, H-1192. Sample of "Ice Cream." Below standard in milk fat.
No. 14314, S-400. Sample of "Ice Cream." Below standard in milk fat.
No. 14321, W-353. Sample of "Ice Cream." Below standard in milk fat.
No. 14322, W-354. Sample of "Ice Cream." Below standard in milk fat.
No. 14326, S-405. Sample of "Ice Cream." Below standard in milk fat.
No. 14327, S-406. Sample of "Ice Cream." Below standard in milk fat.
No. 14330, S-409. Sample of "Ice Cream." Below standard in milk fat.
No. 14332, S-411. Sample of "Ice Cream." Below standard in milk fat.
No. 14333, S-412. Sample of "Ice Cream." Below standard in milk fat.
No. 14334, S-413. Sample of "Ice Cream." Below standard in milk fat.
No. 14335, S-414. Sample of "Ice Cream." Below standard in milk fat.
No. 14336, S-415. Sample of "Ice Cream." Below standard in milk fat.
No. 14339, N-609. Sample of "Ice Cream." Below standard in milk fat.

JELLIES AND PRESERVES.

No. 12975, S-197. Sample of "Raspberry Preserves." Jobbers, Dow & Snell Co., Toledo, Ohio. An imitation fruit preserve, artificially colored.

No. 13209, I-465. Sample of "Benton Harbor Jams." Manufacturer, Benton Harbor Preserving Co., Chicago, Ill. Contains glucose; not properly labeled.

No. 13279, S-261. Sample of "Cadillac Brand Sugar and Glucose Compound Fruit Jam." Manufacturer, The Williams Bros. Co., Detroit. Not pure fruit jam, contains glucose.

No. 13320, I-485. Sample of "Compound Currant Jelly (Cedar Valley Brand)." Manufacturer, New Wooster Preserving Co., Wooster, Ohio. An imitation jelly improperly labeled and contains artificial color.

No. 13438, W-305. Sample of "Pure Currant and Apple Jelly (Topmost Brand)." Jobber, John A. Tolman & Co., Chicago. Contains preservative not stated on label.

No. 13467, S-293. Sample of "Jam (Fort Henry Brand)." Manufacturer, McMechen Preserving Co., Wheeling, W. Va. An imitation jam colored and preserved artificially.

No. 13468, S-294. Sample of "High Grade Jelly (Cedar Valley

Brand). Manufacturer, New Wooster Preserving Co., Wooster, Ohio. An imitation jelly preserved and artificially colored.

No. 13657, S-322. Sample of "Strawberry Jam (Nabob Brand)." Manufacturer, Francis H. Leggett & Co., New York. A glucose mixture, or imitation jam not properly labeled.

No. 13660, I-508. Sample of "Jelly Mixture (Fort Henry Brand)." Manufacturer, McMechen Preserving Co., Wheeling, W. Va. An imitation jelly or glucose mixture, not properly labeled.

No. 13741, S-336. Sample of "Strawberry Preserves (Duchess Brand)." Manufacturer, The John Boyle Co., Baltimore, Md. Not properly labeled as an imitation fruit preserve, and artificially colored.

No. 13778, S-339. Sample of "Imitation Cherry Jam (Clover Leaf Brand)." Manufacturer, Chicago Concentrating Co., Chicago. An imitation jam containing glucose and artificially colored.

### LARD.

No. 12939, S-201. Sample of "Pure Lard (Silver Medal)" manufactured by Parker, Webb & Co., Detroit. Not properly labeled as a lard compound.

No. 12937, S-199. Sample of "Pure Lard (White Seal)" manufactured by Thomas Barlum & Sons, Detroit. Not properly labeled as a lard compound.

No. 12654, Unofficial. Sample of "Lard." Sample is unwholesome.

### MAPLE SUGAR AND MAPLE SYRUP.

No. 13030, S-207. Sample of "Aunt Jemima's Sugar Cream." Manufacturer, Rigney & Company, Brooklyn, N. Y. Does not state percentage of maple, etc., in the mixture.

No. 13032, S-209. Sample of "Maple & Cane Syrup." Manufacturer, Puhl, Webb & Co., Chicago. Does not state percentage of ingredients.

No. 13067, I-456. Sample of "Maple Cream." Manufacturer, Boyle & Williams, Bradford Pa. Not a pure maple product.

No. 13068, I-458. Sample of "Silver Seal Table Syrup." Manufacturer, Boyle & Williams, Bradford, Pa. Contains a small amount of maple, but proportions not stated on label.

No. 13071, S-213. Sample of "Maple Cream." Manufacturer, Boyle & Williams, Bradford, Pa. Not properly labeled.

No. 13074, S-216. Sample of "Belle Isle Vermont Syrup." Manufacturer, E. A. Charbonneau, Detroit. Does not contain amount of maple claimed.

No. 13111, W-282. Sample of "Maple & Cane Sugar Syrup (Kanuck Brand)." Manufacturer, Corn Products Refining Co., Chicago, Ill. A mixed syrup; does not contain proportion of ingredients stated on label.

No. 13175, I-461. Sample of "Vermont Maple Syrup & Pure Rock Candy Syrup." Manufacturer, Scudder Syrup Co., Chicago. Not true to formula. Contains approximately 20 per cent maple.

No. 13211, I-467. Sample of "Walnut Maples." Manufacturer, W. E. Parmenter, Detroit. Sample contains no maple product.

No. 13271, U-250. Sample of "Mapleine." Manufacturer, Crescent Mfg. Co., Seattle, Wash. Not properly labeled as a mixture or compound.

No. 13301, I-479. Sample of "Maple Sugar." Jobbers, Lee & Cady, Detroit. Not a pure maple sugar.

No. 13397, W-295. Sample of "Cane & Maple Sugar Syrup (Sugar Hill Brand)." Manufacturer, Bay State Maple Syrup Co., Boston, Mass. Contains approximately 20 per cent maple mixed with sucrose. Percentages not given on label.

No. 13398, W-296. Sample of "Home Brand Pure Syrup." Manufacturer Huntington Maple Syrup & Sugar Co., East Providence, R. I. Contains approximately 15 per cent maple. Percentages not stated.

No. 13415, L-903. Sample of "Maple Syrup." Sold by Halvor Sorkness, Manistee. Not maple syrup.

No. 13430, S-290. Sample of "Table Syrup (Extra Fine Brand)." Manufacturer, Western Reserve Syrup Co., Cleveland, O. Sample contains glucose. Improperly labeled.

No. 13470, S-296. Sample of "Maple & Rock Candy Sugar (Park Brand)." Manufacturer, Rigney & Company, Brooklyn, N. Y. Contains 10 to 15 per cent maple. No percentage given on label.

No. 13473, S-299. Sample of "Maple & Cane Syrup (Wayne County Brand)." Manufacturer, Horton-Cato Mfg. Co., Detroit. No percentages given.

No. 13499, I-493.—Sample of "Mapleine." Manufacturer, Crescent Manufacturing Co., Seattle, Wash. Not properly labeled.

No. 13518, I-502. Sample of "Imitation Maple Syrup." Manufacturer, Edwin Fallas, Lowell, Mich. Sample contains glucose as shown by label. Not properly labeled.

No. 13695. Unofficial. Samples of Maple Syrup and Maple Sugar. Not pure syrup and sugar.

No. 13782, S-340. Samples of "Michigan Sap Maple Syrup." Manufacturer, G. B. Wright, Eaton Rapids. Not pure maple syrup, contains at least 50 per cent sucrose syrup.

No. 13796, M-8. Sample of "Pure Maple Sugar." Manufacturer, Boyle & Williams, Bradford, Pa. Not pure maple sugar, contains at least 50 per cent sucrose.

MEAT.

No. 13104, N-501. Sample of "Salt Pork (Woodlawn Brand)." Jobbers, Gustin, Cook & Buckley, Bay City, Mich. Dealer, Black Dept. Store, Berne, Mich. Sample unfit for food.

No. 13172, Unofficial. Sample of "Pork." Sample is diseased, corrupt, unwholesome. Unfit for food.

No. 13178, S-246. Sample of "Bologna" manufactured by Clayton Jewell, Mason, Mich. Bologna casing colored.

No. 13299, I-477. Sample of "Pork." Dealer, Wm. Lachelt, Wyandotte, Mich. Sample is unwholesome due to putrifactive changes.

No. 13338. Unofficial. Sample of "Sausage." Sample contains a small amount of starch and not less than 10 per cent water in excess of that naturally contained in the meats from which it was manufactured.

MILK.

No. 12603, T-1012. Sample of "Milk." Below standard in solids and fat. Skimmed.

No. 12633, H-1083. Sample of "Milk:" Low in fat.
No. 12634, H-1084. Sample of "Milk." Low in fat.
No. 12642, H-1090. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12643, H-1091. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12644, H-1092. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12645, R-45. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12738, O-17. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12743, O-22. Sample of "Milk." Below standard in solids. Watered.
No. 12746, O-25. Sample of "Milk." Low in solids.
No. 12754, O-33. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12756, O-35. Sample of "Milk." Below standard in solids and fat. Skimmed.
No. 12758, O-37. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12766, O-45. Sample of "Milk." Below standard in solids.
No. 12775, H-1093. Sample of "Milk." Below standard in solids and fat. Skimmed.
No. 12776, H-1094. Sample of "Milk." Below standard in solids and fat. Skimmed.
No. 12788, O-52. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12789, O-53. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12791, F-135. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12792. Unofficial sample of "Milk." Low in fat.
No. 12794. Unofficial sample of "Milk." Low in fat.
No. 12795. Unofficial sample of "Milk." Low in fat.
No.12798. Unofficial sample of "Milk." Low in fat.
No. 12799. Unofficial sample of "Milk." Low in fat.
No. 12800, H-1106. Sample of "Milk." Below standard in solids and fat. Skimmed.
No. 12806, H-1112. Sample of "Milk." Below standard in solids and fat skimmed.
No. 12807, O-55. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12808, O-56. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12829, H-1113. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12830, H-1114. Sample of "Milk." Below standard in solids and fat. Watered.
No. 12832, F-136. Sample of "Milk." Below standard in solids and fat and contains abundance of added water.

No. 12833, F-137. Sample of "Milk." Below standard in solids and fat. Watered.

No. 12834, F-138. Sample of "Milk." Below standard in solids and fat. Watered.

No. 12888, F-139. Sample of "Milk." Below standard in solids. Watered.

No. 12889, F-140. Sample of "Milk." Below standard in solids. Watered.

No. 12930, F-1082. Sample of "Milk." Below standard in solids and fat. Watered.

No. 12942, H-1117. Sample of "Milk." Below standard in solids, fat and specific gravity. Watered.

No. 12943, H-1118. Sample of "Milk." Below standard in solids, fat and specific gravity. Watered.

No. 12953, H-1121. Sample of "Milk." Below standard in solids and fat. Skimmed.

No. 12999, H-1122. Sample of "Milk." Below standard in solids, fat and specific gravity. Watered.

No. 13040, Unofficial. Sample of "Milk." Skimmed.

No. 13145, O-61. Sample of "Milk." Below standard in solids. Watered.

No. 13174, Unofficial. Sample of "Milk." Watered.

No. 13197, T-1115. Sample of "Milk." Below standard in solids and fat Watered.

No. 13198, T-1116. Sample of "Milk." Below standard in solids and fat. Watered.

No. 13199, T-1117. Sample of "Milk." Below standard in solids and contains added water.

No. 13200, T-118. Sample of "Milk." Below standard in solids. Watered.

No. 13203, T-1121. Sample of "Milk." Unclean and insanitary.

No. 13215, T-1122. Sample of "Milk." Below standard in solids. Watered.

No. 13218, T-1125. Sample of "Milk." Below standard in solids and fat, watered.

No. 13312, X-213. Sample of "Milk." Below standard in solids and fat; contains added water.

No. 13334, X-214. Sample of "Milk." Below standard in solids and fat; contains added water.

No. 13335, X-215. Sample of "Milk." Below standard in solids and fat and contains added water.

No. 13336, X-216. Sample of "Milk." Below standard in solids and fat and contains added water.

No. 13357, T-1131. Sample of "Milk." Below standard in solids and fat and contains about 40 per cent added water.

No. 13358, T-1132. Sample of "Milk." Below standard in solids and fat. Skimmed.

No. 13359, T-1133. Sample of "Milk." Below standard in solids and fat and contains about 50 per cent added water.

No. 13360, T-1134. Sample of "Milk." Below standard in solids and fat and contains about 30 per cent added water.

No. 13363, T-1137. Sample of "Milk." Below standard in solids and contains added water.

No. 13368, T-1142. Sample of "Milk." Below standard in solids and contains added water.

No. 13416, H-1132. Sample of "Milk." Below standard in solids and fat.

No. 13434. Unofficial. Sample of "Milk." A good quality of milk but abnormal regarding coagulation tests. Does not churn easily. Sanitary condition poor.

No. 13491. Unofficial. Sample of "Milk." Below standard in fat.

No. 13493, R-30. Sample of "Milk." Below standard in solids and fat and contains about 50 per cent added water.

No. 13494, R-31. Sample of "Milk." Below standard in solids and fat and contains about 12 per cent added water.

No. 13497, R-34. Sample of "Milk." Below standard in fat. Partially skimmed.

No. 13498, R-35. Sample of "Milk." Below standard in solids and fat and contains about 20 per cent added water.

No. 13506, H-1133. Sample of "Milk." Below standard in solids and fat and contains about 30 per cent added water.

No. 13507, H-1134. Sample of "Milk." Below standard in solids and fat and contains about 30 per cent added water.

No. 13520, E-13. Sample of "Milk." Below standard in solids and fat. Partly skimmed.

No. 13559, T-1194. Sample of "Milk. Below standard in solids and fat. Has had some of the fat removed.

No. 13560, T-1195. Sample of "Milk." Below standard in solids and fat. Has had some of fat removed.

No. 13562, T-1197. Sample of "Milk." Below standard in solids and fat.

No. 13594, T-1221. Sample of "Milk." Below standard in solids and fat. Contains about 25 per cent added water.

No. 13600, T-1227. Sample of "Milk." Below standard in solids and fat, otherwise not adulterated.

No. 13737. Unofficial. Sample of "Milk." Sample very unclean.

No. 13767, T-1261. Sample of "Milk." Below standard in solids and fat. Has had some of fat removed.

No. 13747, T-1248. Sample of "Milk." Below standard in solids and fat.

No. 13754, T-1255. Sample of "Milk." Below standard in fat. Skimmed.

No. 13783, I-521. Sample of "Milk." Below standard in solids and fat and contains about 50 per cent added water.

No. 13784, I-522. Sample of "Milk." Below standard in solids and fat and contains about 50 per cent added water.

No. 13786. Unofficial. Sample of "Milk." Below standard in fat.

No. 13807, I-532. Sample of "Milk." Below standard in solids and fat.

No. 13808, I-533. Sample of "Milk." Below standard in solids and fat.

No. 13818, I-543. Sample of "Milk." Below standard in solids and fat.

No. 13819, I-544. Sample of "Milk." Below standard in solids and fat.

No. 13820, I-545. Sample of "Milk." Below standard in solids and fat.

No. 13827, R-38. Sample of "Milk." Below standard in solids and contains a small amount of added water.

No. 13828, R-39. Sample of "Milk." Below standard in solids and butterfat and contains about 20 per cent added water.

No. 13839, F-141. Sample of "Milk." Below standard in solids and fat.

No. 13840, F-142. Sample of "Milk." Below standard in solids and fat.

No. 13841, F-143. Sample of "Milk." Below standard in solids and butterfat.

No. 13858, T-1278. Sample of "Milk." Below standard in solids and contains added water.

No. 13859, T-1279. Sample of "Milk." Below standard in solids and fat and contained added water.

No. 14062, T-1328. Sample of "Milk." Below standard in solids and fat.

No. 14063, T-1329. Sample of "Milk." Below standard in solids and fat.

No. 14292, T-1396. Sample of "Milk." Sample is filthy and unsafe as well as unfit for consumption.

No. 14337. Unofficial. Sample of "Milk." Below standard in fat; sample is very unclean.

### MISCELLANEOUS.

No. 13683. Unofficial. Sample of "Canned Tomatoes." Can leaking and contents spoiled.

No. 13352. Unofficial. Sample of "Turpentine." Sample does not conform to the U. S. P.

No. 12714, I-431. Sample of "Maraschino Cherries." Jobbers, Dueweke Grocery Co., Detroit. Not properly labeled.

No. 12928, I-444. Sample of "Maraschino Cherries (Choice Quality)," Jobbers, Dueweke Grocery Co., Detroit. Not properly labeled.

No. 12926, I-442. Sample of "Mushrooms." Jobber, J. P. Smith & Co., New York City. Not properly labeled.

No. 12780, N-484. Sample of "Olives." Jobbers, Symons Bros. & Co., Saginaw, Mich. Not properly labeled.

### MUSTARD.

No. 12838, I-435. Sample of "Prepared Mustard." Dealer, John Wertman, 388 St. Aubin St., Detroit. Contains wheat starch.

No. 12842, I-439. Sample of "Prepared Mustard." Manufacturer, Joseph Campbell, Camden, N. J. Jobbers, Grones & Brehmer, Detroit. Contains corn starch and mustard hulls.

No. 12929, I-445. Sample of "Prepared Mustard" manufactured by W. E. Parmenter, Detroit. Contains wheat starch.

No. 13078, S-220. Sample of "Bismark Mustard," manufactured by Reid, Murdock & Co., Chicago, Ill. A prepared mustard, not properly labeled.

MOLASSES.

No. 13721, W-315. Sample of "Open Kettle Molasses & Glucose (Sweet Marie Brand)." Manufacturer, Dugue & Co., New Orleans, La. A glucose mixture, not properly labeled.

OILS.

No. 12598. Unofficial. Sample of "Pure Gold Salad Dressing." Contains boric acid.

OLEOMARGARINE.

No. 12840, I-437. Sample of "Oleomargarine," sold by Chas. Danto, Detroit. Not properly labeled.

No. 13038, I-457. Sample of "Colored Oleomargarine." Jobber, Alonzo Hart, 168 Michigan Ave., Detroit. Colored in imitation of yellow butter.

No. 13127, N-504. Sample of "Oleomargarine," sold by C. M. Foess & Son, Vassar. No stamp or formula slip used.

No. 13129, N-506. Sample of "Oleomargarine," sold by Geo. A. Stevenson, Vassar. No stamp or formula slip used.

No. 13253, I-473. Sample of "Oleomargarine." Jobber, H. P. Cohen, Cadillac Square, Detroit. Sample is oleomargarine colored in imitation of yellow butter.

No. 13302, I-480. Sample of "Oleomargarine." Jobber, Friedman Mfg. Co., Detroit. Not properly stamped.

No. 13390, S-277. Sample of "Oleomargarine." Jobber, H. P. Cohen, Cadillac Square, Detroit. Sample of oleomargarine colored in imitation of yellow butter.

No. 13429, L-904. Sample of "Oleomargarine." Dealer, Sagola Lumber Co., Chicago. Sample is oleomargarine colored in imitation of yellow butter.

No. 13503, I-497. Sample of "Oleomargarine." Dealer, West Side Inn, C. F. Monroe, Mngr., 232 S. Ingalls St., Ann Arbor. Sample is oleomargarine colored in imitation of yellow butter.

PEAS.

No. 12925, I-441. Sample of "Fine Peas," manufactured by G. Cremer, Malines, Belgium. Jobber, J. P. Smith & Co., New York City. Contain copper.

No. 13303, S-263. Sample of "Sweet Valley Peas." Manufacturer, Gibbs Preserving Co., Baltimore, Md. Soaked goods, labeled, but letters not of sufficient size.

No. 13631, M-2. Sample of "Extra Fine French Peas (Francois Brand). Jobber, LaManna, Azema & Farnum, New York City. Dealer, G. & R. McMillan Co., Detroit. Contains copper as a colorant.

No. 13658, S-325. Sample of "Surextrafine French Peas. Manufacture, George Dalidet, Bordeaux, France. Dealer, Wm. B. Anderson, Pontiac. Colored with sulphate of copper.

SPICES.

No. 12846, S-158. Sample of "Whole Pepper" manufactured by The Heekin Spice Co., Cincinnati, O. Not pure pepper.

No. 12847, S-159. Sample of "Ground Pepper" manufactured by The Heekin Spice Co., Cincinnati, O. Does not comply with standard for black pepper. No manufacturer's name on shaker.

No. 12868, S-183. Sample of "Pepper." Jobbers, Phipps, Penoyer & Co., Saginaw, Mich. Not pure pepper.

No. 12976, S-203. Sample of "Whole Pepper," manufactured by The Heekin Spice Co., Cincinnati, O. Coated with foreign matter.

No. 12977, S-204. Sample of "Ground Pepper." Jobbers, Heekin Spice Co., Cincinnati, O. Does not comply with standard for black pepper.

No. 12978, S-205. Sample of "Ground Pepper" manufactured by The Newton Tea & Spice Co., Cincinnati, O. Does not comply with standard for black pepper.

No. 12979, S-206. Sample of "White Pepper." Jobbers, The Heekin Spice Co., Cincinnati, O. No manufacturer's name on shaker.

No. 13033, S-210. Sample of "Ground Pepper." Manufacturer, Batavia Mills, Philadelphia. High in crude fiber.

No. 13157, S-238. Sample of "Pepper." Manufacturer, The Newton Tea & Spice Co., Cincinnati, O. Too high in crude fiber.

No. 13420, S-282. Sample of "Whole Pepper." Dealer, Henry Engel, Kalamazoo. Whole pepper artifically coated or colored.

SYRUP.

No. 12938, S-200. Sample of "Table Syrup (Silver Seal)," manufactured by Boyle & Williams, Bradford, Pa. Not properly labeled.

No. 12974, S-196. Sample of "Cane & Canadian Maple Syrup (Old Manse Pure)" manufactured by Manierre-Yoe Syrup Co., Chicago. Does not give percentage of ingredients. Not properly labeled.

VINEGAR.

No. 12655, S-165. Sample of "Vinegar" manufactured by Lawton Vineyards Co., Kalamazoo, Mich. Below standard in solids and ash.

No. 12902, Unofficial. Sample of "Cider Vinegar." Below standard in acid.

No. 12952, S-202. Sample of "Fermented Apple Cider Vinegar" manufactured by Gordon Vinegar Co., Pontiac, Mich. Below standard in acid.

No. 13428, W-303. Sample of "Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in acid strength, solids and ash.

No. 13692, S-327. Sample of "Cider Vinegar." Manufacturer, Lacota Cider & Vinegar Co., Lacota, Mich. Below standard in acid strength.

No. 13693, S-328. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in acid, solids and ash.

No. 13694, S-329. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in solids and ash.

No. 13701, S-331. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in acid, solids and ash.

No. 13702, S-332. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in solids and ash.

No. 13703, S-333. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Sample is below standard in acid, solids and ash.

No. 13704, S-334. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in acid, solids and ash.

No. 13705, S-335. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Sample is below standard in solids.

No. 13718, S-330. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in solids and ash.

No. 13719, S-337. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in acid, solids and ash.

No. 13720, S-338. Sample of "Cider Vinegar." Manufacturer, Allegan Cider & Vinegar Co., Allegan. Below standard in acid, solids and ash.

WATER.

No. 12876, Unofficial. Sample of "Water." Condemned.

No. 12877, Unofficial. Sample of "Water." Condemned.

No. 12882, Unofficial. Sample of "Water." Condemned.

No. 13131, Unofficial. Sample of "Water." Condemned.

No. 13133, Unofficial. Sample of "Water." Condemned.

No. 13134, Unofficial. Sample of "Water." Condemned.

No. 13167, Unofficial. Sample of "Water." Unsafe for drinking purposes.

No. 13418, Unofficial. Sample of "Water." Unfit for use.

No. 13740, Unofficial. Sample of "Water." Unsafe for drinking purposes.

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF JULY, 1908.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 87.9 | 13.8 | 25 | 85 | 17.7 |
| 2 | 85 | 17.7 | 26 | 84.2 | 18.7 |
| 3 | 84.3 | 18.6 | 27 | 81.7 | 22.4 |
| 4 | 85.1 | 17.6 | 28 | 84.7 | 18 |
| 5 | 86.9 | 15.1 | 29 | 85.6 | 16.9 |
| 6 | 86.3 | 15.9 | 30 | 88 | 13.7 |
| 7 | 84.6 | 16.6 | 31 | 84.6 | 18.1 |
| 8 | 85.7 | 16.7 | 32 | 87.8 | 13.9 |
| 9 | 83.9 | 19.2 | 33 | 83.7 | 19.4 |
| 10 | 85.1 | 17.6 | 34 | 84.2 | 18.7 |
| 11 | 82.1 | 21.7 | 35 | 87.3 | 14.4 |
| 12 | 88.2 | 13.3 | 36 | 84.7 | 18.1 |
| 13 | 87.0 | 15 | 37 | 84.1 | 18.9 |
| 14 | 83.3 | 20 | 38 | 84.4 | 18.4 |
| 15 | 84 | 19.1 | 39 | 85.2 | 17.3 |
| 16 | 87.8 | 13.9 | 40 | 85.1 | 17.6 |
| 17 | 85.5 | 16.9 | 41 | 86.7 | 15.4 |
| 18 | 83.7 | 19.5 | 42 | 85.2 | 17.3 |
| 19 | 85.2 | 17.3 | 43 | 85.6 | 16.9 |
| 20 | 85.4 | 17.1 | 44 | 84 | 18 |
| 21 | 84.1 | 18.9 | 45 | 84.5 | 18.4 |
| 22 | 86.9 | 15.1 | 46 | 87.2 | 14.7 |
| 23 | 86.8 | 15.3 | 47 | 83.1 | 20.4 |
| 24 | 86.8 | 15.3 | 48 | 84.5 | 18.4 |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF SEPTEMBER.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 87.2 | 14.7 | 23 | 86.5 | 15.7 |
| 2 | 87.5 | 14.3 | 24 | 85 | 17.7 |
| 3 | 87.5 | 14.3 | 25 | 85.2 | 17.3 |
| 4 | 85.3 | 17.2 | 26 | 86 | 16.3 |
| 5 | 85.1 | 17.6 | 27 | 84.4 | 18.4 |
| 6 | 84.5 | 18.3 | 28 | 88 | 13.6 |
| 7 | 88.7 | 12.8 | 29 | 86.6 | 15.5 |
| 8 | 85.3 | 17.3 | 30 | 87.4 | 14.5 |
| 9 | 85.3 | 17.3 | 31 | | |
| 10 | 85.9 | 16.5 | 32 | 87 | 14.9 |
| 11 | 85.7 | 16.7 | 33 | 87.3 | 14.6 |
| 12 | 87.1 | 14.9 | 34 | 85.6 | 16.9 |
| 13 (broken) | | | 25 | 84.6 | 18.2 |
| 14 | 87.2 | 14.6 | 36 | 88.8 | 12.6 |
| 15 | 85 | 17.7 | 37 | 86 | 16.3 |
| 16 | 88.1 | 13.5 | 38 | 87.4 | 14.4 |
| 17 | 85.7 | 16.7 | 39 | 85.5 | 16.9 |
| 18 | 85.7 | 16.7 | 40 | 88 | 13.6 |
| 19 | 84 | 19.1 | 41 | No sample | |
| 20 | 86.3 | 15.9 | 42 | No sample | |
| 21 | 84.6 | 18.2 | 43 | 84.4 | 18.4 |
| 22 | 84.3 | 18.6 | 44 | 85.7 | 16.7 |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF OCTOBER, 1908.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 84.4 | 18.5 | 24 | 84.9 | 17.8 |
| 2 | 83.1 | 20.3 | 25 | 82 | 21.6 |
| 3 | 87.8 | 13.9 | 26 | 85.3 | 17.2 |
| 4 | 87.1 | 14.9 | 27 | 86.5 | 15.6 |
| 5 | 85.4 | 17.1 | 28 | 86.8 | 15.2 |
| 6 | 83.8 | 19.4 | 29 | 83.5 | 19.6 |
| 7 | 85.2 | 17.4 | 30 | 86.4 | 15.8 |
| 8 | 86 | 16.1 | 31 | 85.7 | 16.7 |
| 9 | 81.5 | 22.5 | 32 | 84.7 | 18 |
| 10 | 80.3 | 24.5 | 33 | 86.4 | 15.7 |
| 11 | 87.1 | 14.7 | 34 | 83.3 | 20 |
| 12 | 82.9 | 20.6 | 35 | 87.1 | 14.7 |
| 13 | 84.2 | 18.6 | 36 | 83.9 | 19.2 |
| 14 | 86.1 | 15.1 | 37 | 85.4 | 16.9 |
| 15 | 86.3 | 15.9 | 38 | 85 | 17.5 |
| 16 | 85.2 | 17.4 | 39 | 85.5 | 16.9 |
| 17 | 88 | 13.6 | 40 | 88.2 | 13.3 |
| 18 | 85.5 | 15.5 | 41 | 85 | 17.7 |
| 19 | 87 | 15 | 42 | 86.7 | 15.2 |
| 20 | 84.6 | 18.2 | 43 | 83.8 | 19.3 |
| 21 | 84.2 | 18.6 | 44 | 84.5 | 18.4 |
| 22 | 86 | 16.1 | 45 | 86.4 | 15.7 |
| 23 | 84.5 | 18.3 | 46 | 85.7 | 16.7 |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF NOVEMBER, 1908.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 83.3 | 20 | 16 | 83 | 20.5 |
| 2 | 86.6 | 15.5 | 17 | 89.2 | 12.2 |
| 3 | 83.3 | 20 | 18 | 86.3 | 15.9 |
| 4 | 82.1 | 21.7 | 19 | 84.3 | 18.7 |
| 5 | 82 | 22 | 20 | 84.7 | 18.1 |
| 6 | 86.2 | 16.1 | 21 | 87 | 14.9 |
| 7 | 84.7 | 18.1 | 22 | 84.5 | 18.3 |
| 8 | 87.5 | 14.3 | 23 | 86.3 | 15.9 |
| 9 | 85.7 | 16.7 | 24 | 87 | 14.9 |
| 10 | 82.9 | 20.6 | 25 | 85.9 | 16.4 |
| 11 | 83 | 20.5 | 26 | 81.5 | 22.7 |
| 12 | 85.3 | 17.1 | 27 | 82.6 | 20.9 |
| 13 | 84.7 | 18.1 | 28 | 84.4 | 18.5 |
| 14 | 82.7 | 21 | 29 | 84.4 | 18.4 |
| 15 | 81.4 | 22.9 | | | |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF DECEMBER, 1908.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 85 | 17.7 | 28 | 87.5 | 14.3 |
| 2 | 83.1 | 20.3 | 29 | 81 | 23.5 |
| 3 | 85.7 | 16.7 | 30 | 83.8 | 19.4 |
| 4 | 86.4 | 15.8 | 31 | 84.8 | 17.9 |
| 5 | 88 | 13.6 | 32 | 82.1 | 21.7 |
| 6 | 84.9 | 17.8 | 33 | 86 | 16.3 |
| 7 | 83.3 | 20 | 34 | 81.7 | 22.4 |
| 8 | 88.6 | 12.9 | 35 | 82.6 | 21.1 |
| 9 | 83.8 | 19.4 | 36 | 88.4 | 13.1 |
| 10 | 86.3 | 15.8 | 37 | 84.4 | 18.4 |
| 11 | 84.5 | 18.3 | 38 | 84 | 19.1 |
| 12 | 83.8 | 19.4 | 39 | 85.3 | 17.1 |
| 13 | 84 | 19.1 | 40 | 83.3 | 20 |
| 14 | 85.7 | 16.7 | 41 | 88.2 | 13.4 |
| 15 | 87.1 | 14.7 | 42 | 83.3 | 20 |
| 16 | 88.3 | 13.2 | 43 | 85.3 | 20 |
| 17 | 83.3 | 20. | 44 | 81.3 | 23.1 |
| 18 | 85.4 | 17.1 | 45 | 82.6 | 21 |
| 19 | 84.9 | 17.8 | 46 | 83 | 20.5 |
| 20 | 85.9 | 16.3 | 47 | 83.3 | 20 |
| 21 | 84.4 | 18.4 | 48 | 83.7 | 19.3 |
| 22 | 84.4 | 18.4 | 49 | 84.8 | 17.9 |
| 23 | 83.3 | 20 | 50 | 85.4 | 16.9 |
| 24 | 84.8 | 17.9 | 51 | 84.8 | 17.9 |
| 25 | 82.9 | 20.6 | 52 | 84 | 19 |
| 26 | 81.5 | 22.7 | 53 | 84.6 | 18.1 |
| 27 | 82.4 | 21.3 | 54 | 86 | 16.1 |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF JANUARY, 1909.

| Number. | Butter fat % | Over-run % | Number. | Butter-fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 82.8 | 20.8 | 28 | 85.3 | 17.2 |
| 2 | 83.7 | 19.4 | 29 | 84.1 | 19.0 |
| 3 | 85.7 | 16.7 | 30 | 82.8 | 20.8 |
| 4 | 87.6 | 14.1 | 31 | 84.8 | 17.9 |
| 5 | 86.7 | 15.3 | 32 | 80.0 | 25.0 |
| 6 | 86.7 | 15.4 | 33 | 87.3 | 14.6 |
| 7 | 82.1 | 21.7 | 34 | 82.1 | 21.7 |
| 8 | 84.2 | 16.8 | 35 | 84.8 | 18.0 |
| 9 | 87.9 | 13.7 | 36 | 88.5 | 13.0 |
| 10 | 83.6 | 19.6 | 37 | 86.5 | 15.6 |
| 11 | 85.6 | 16.8 | 38 | 82.6 | 21.0 |
| 12 | 88.3 | 13.3 | 39 | 85.6 | 16.8 |
| 13 | Sample bottle | broken | 40 | 86.1 | 16.1 |
| 14 | 84.1 | 19.0 | 41 | 85.7 | 16.7 |
| 15 | 85.0 | 17.7 | 42 | 86.2 | 16.0 |
| 16 | 82.5 | 21.2 | 43 | 82.1 | 21.9 |
| 17 | 83.8 | 19.3 | 44 | 81.0 | 23.5 |
| 18 | 83.2 | 20.2 | 45 | 77.9 | 28.2 |
| 19 | 82.0 | 22.0 | 46 | 84.1 | 19.0 |
| 20 | 83.6 | 19.6 | 47 | 85.1 | 17.6 |
| 21 | 84.5 | 18.4 | 48 | 86.5 | 15.6 |
| 22 | 85.7 | 16.7 | 49 | 85.5 | 17.0 |
| 23 | 84.2 | 18.8 | 50 | 83.0 | 20.4 |
| 24 | 83.3 | 20.0 | 51 | 84.7 | 18.1 |
| 25 | 87.7 | 14.0 | 52 | 84.6 | 18.3 |
| 26 | 86.2 | 16.0 | 53 | 82.4 | 21.4 |
| 27 | 82.5 | 21.3 | 54 | 86.1 | 16.1 |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF FEBRUARY, 1909.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 87.2 | 14.7 | 65 | 86.6 | 15.5 |
| 2 | 83.1 | 20.4 | 66 | 87.0 | 14.9 |
| 3 | 84.2 | 18.8 | 67 | 87.6 | 14.1 |
| 4 | 84.9 | 17.8 | 68 | 85.3 | 17.2 |
| 5 | 85.5 | 17.0 | 69 | 85.3 | 17.2 |
| 6 | 86.9 | 15.1 | 70 | 87.7 | 14.0 |
| 7 | 83.9 | 19.2 | 71 | 85.3 | 17.2 |
| 8 | 80.0 | 25.0 | 72 | 84.3 | 18.6 |
| 9 | 86.9 | 16.0 | 73 | 86.1 | 16.1 |
| 10 | 84.8 | 17.9 | 74 | 87.7 | 14.0 |
| 11 | 84.4 | 18.5 | 75 | 82.6 | 21.1 |
| 12 | 84.0 | 19.3 | 76 | 84.8 | 17.9 |
| 13 | 86.3 | 15.8 | 77 | 87.2 | 14.7 |
| 14 | 86.4 | 15.7 | 78 | 85.1 | 17.5 |
| 15 | 84.5 | 18.4 | 79 | 87.1 | 14.9 |
| 16 | 85.1 | 17.5 | 80 | Missing | |
| 17 | 84.8 | 17.9 | 81 | 82.5 | 20.7 |
| 18 | 87.5 | 14.3 | 82 | 81.1 | 23.3 |
| 19 | 85.9 | 16.5 | 83 | Missing | |
| 20 | 82.2 | 21.6 | 84 | 84.4 | 18.6 |
| 21 | 85.7 | 16.7 | 85 | 83.8 | 19.4 |
| 22 | 85.2 | 17.4 | 86 | 83.2 | 20.2 |
| 23 | 87.5 | 14.3 | 87 | 84.1 | 18.9 |
| 24 | 87.5 | 14.3 | 88 | 85.1 | 17.4 |
| 25 | 85.7 | 16.7 | 89 | 89.3 | 12.0 |
| 26 | 86.3 | 15.9 | 90 | 86.4 | 15.8 |
| 27 | 84.7 | 18.1 | 91 | 86.6 | 12.9 |
| 28 | 86.2 | 16.0 | 92 | 87.5 | 14.3 |
| 29 | 86.8 | 15.0 | 93 | 87.1 | 14.9 |
| 30 | 86.0 | 16.3 | 94 | 86.1 | 16.1 |
| 31 | 85.3 | 17.2 | 95 | 86.2 | 16.1 |
| 32 | 87.5 | 14.3 | 96 | 87.4 | 14.4 |
| 33 | 85.1 | 17.6 | 97 | 83.7 | 19.4 |
| 34 | 87.3 | 14.6 | 98 | 85.5 | 17.0 |
| 35 | 85.3 | 17.2 | 99 | 85.9 | 16.5 |
| 36 | Missing | | 100 | 84.2 | 18.8 |
| 37 | 84.9 | 17.8 | 101 | 90.6 | 10.4 |
| 38 | 82.9 | 20.7 | 102 | 84.8 | 18.0 |
| 39 | 86.6 | 15.5 | 103 | 87.8 | 13.8 |
| 40 | 83.3 | 20.0 | 104 | 86.6 | 15.5 |
| 41 | Broken | | 105 | 86.5 | 15.6 |
| 42 | 82.7 | 20.9 | 106 | 87.4 | 14.4 |
| 43 | 86.9 | 15.1 | 107 | Broken | |
| 44 | 84.9 | 17.8 | 108 | 84.5 | 18.4 |
| 45 | 82.7 | 21.0 | 109 | 84.9 | 17.8 |
| 46 | 84.3 | 18.7 | 110 | 86.6 | 15.5 |
| 47 | 85.8 | 16.5 | 111 | Missing | |
| 48 | Missing | | 112 | 89.7 | 11.5 |
| 49 | 86.8 | 15.2 | 113 | 88.5 | 13.0 |
| 50 | 84.3 | 18.3 | 114 | 90.7 | 10.2 |
| 51 | Missing | | 115 | Missing | |
| 52 | 86.7 | 15.3 | 116 | 90.0 | 11.1 |
| 53 | 88.5 | 13.0 | 117 | 91.1 | 9.8 |
| 54 | 86.8 | 15.2 | 118 | Missing | |
| 55 | 87.4 | 14.4 | 119 | Missing | |
| 56 | 84.0 | 19.1 | 120 | Missing | |
| 57 | 84.3 | 18.6 | 121 | 90.5 | 10.4 |
| 58 | 85.9 | 16.5 | 122 | 89.2 | 12.0 |
| 59 | Broken | | 123 | 87.5 | 14.3 |
| 60 | 88.6 | 12.9 | 124 | 80.9 | 23.6 |
| 61 | 85.4 | 17.1 | 125 | 85.2 | 17.4 |
| 62 | 84.9 | 17.8 | 126 | 88.0 | 13.6 |
| 63 | 87.3 | 14.6 | 127 | 84.4 | 18.3 |
| 64 | 85.2 | 17.4 | 128 | 84.7 | 18.1 |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF MARCH 1909.

| Number. | Butter fat % | Over-run % | Number. | Butter-fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | Broken | | 22 | 86.4 | 15.7 |
| 2 | 81.8 | 22.2 | 23 | 82.7 | 20.9 |
| 3 | 86.0 | 16.3 | 24 | 86.4 | 15.7 |
| 4 | 87.3 | 14.6 | 25 | 83.5 | 19.8 |
| 5 | 84.1 | 18.9 | 26 | 86.3 | 15.9 |
| 6 | 85.4 | 17.1 | 27 | 86.0 | 16.3 |
| 7 | 87.3 | 14.6 | 28 | 81.6 | 22.6 |
| 8 | 85.6 | 16.9 | 29 | 81.4 | 22.8 |
| 9 | 87.0 | 14.9 | 30 | 81.4 | 22.8 |
| 10 | 86.2 | 16.0 | 31 | 86.6 | 15.5 |
| 11 | 87.3 | 14.6 | 32 | 84.3 | 18.6 |
| 12 | 84.3 | 18.6 | 33 | 82.9 | 20.7 |
| 13 | 83.0 | 20.5 | 34 | 83.3 | 20.0 |
| 14 | 84.5 | 18.4 | 35 | 84.2 | 18.8 |
| 15 | 85.2 | 17.4 | 36 | 85.6 | 16.9 |
| 16 | 86.1 | 16.1 | 37 | 82.4 | 21.4 |
| 17 | 83.8 | 19.3 | 38 | 88.1 | 13.5 |
| 18 | 84.3 | 18.6 | 39 | 80.8 | 23.8 |
| 19 | 84.3 | 18.6 | 40 | 85.3 | 17.2 |
| 20 | 87.3 | 14.6 | 41 | 84.8 | 18.0 |
| 21 | 81.0 | 23.5 | 42 | 84.8 | 17.9 |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF APRIL, 1909.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 85.6 | 16.9 | 19 | 87.3 | 14.6 |
| 2 | 86.1 | 16.1 | 20 | 86.1 | 16.1 |
| 3 | 86.7 | 15.4 | 21 | 87.3 | 14.6 |
| 4 | 88.4 | 13.2 | 22 | 86.0 | 16.3 |
| 5 | 85.0 | 17.7 | 23 | 84.5 | 18.4 |
| 6 | 84.3 | 18.6 | 24 | 84.5 | 18.4 |
| 7 | 82.4 | 21.4 | 25 | 84.3 | 18.6 |
| 8 | 86.4 | 15.7 | 26 | 85.9 | 16.5 |
| 9 | 87.6 | 14.1 | 27 | 84.5 | 18.4 |
| 10 | 84.6 | 18.2 | 28 | 86.7 | 15.3 |
| 11 | 86.7 | 15.3 | 29 | 89.1 | 12.2 |
| 12 | 86.9 | 15.1 | 30 | 85.4 | 17.1 |
| 13 | 83.3 | 20.0 | 31 | 88.1 | 13.5 |
| 14 | 85.0 | 17.7 | 32 | 82.8 | 20.7 |
| 15 | 83.0 | 20.5 | 33 | 87.8 | 14.0 |
| 16 | 84.8 | 18.0 | 34 | 86.9 | 15.1 |
| 17 | 86.0 | 16.3 | 35 | 85.3 | 17.2 |
| 18 | 85.6 | 16.9 | | | |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF MAY, 1909.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 85.7 | 16.7 | 30 | 85.1 | 17.5 |
| 2 | 85.7 | 16.7 | 31 | 86.1 | 16.1 |
| 3 | 84.0 | 19.1 | 32 | 85.3 | 17.3 |
| 4 | 87.0 | 14.9 | 33 | 85.6 | 16.9 |
| 5 | 85.9 | 16.5 | 34 | 84.8 | 18.0 |
| 6 | 83.3 | 20.0 | 35 | 82.6 | 21.1 |
| 7 | 89.0 | 12.4 | 36 | 86.3 | 15.9 |
| 8 | 85.0 | 17.7 | 37 | No sample. | |
| 9 | 89.7 | 11.5 | 38 | 85.7 | 16.7 |
| 10 | 86.3 | 15.9 | 39 | 85.6 | 16.9 |
| 11 | 86.9 | 15.1 | 40 | 86.4 | 15.7 |
| 12 | 83.0 | 20.5 | 41 | 85.0 | 17.7 |
| 13 | 86.1 | 16.1 | 42 | 83.9 | 19.2 |
| 14 | 88.1 | 13.5 | 43 | 85.6 | 16.9 |
| 15 | 89.2 | 12.1 | 44 | 86.0 | 16.3 |
| 16 | 88.2 | 13.3 | 45 | 82.0 | 22.0 |
| 17 | 87.3 | 14.6 | 46 | 85.9 | 16.5 |
| 18 | 86.4 | 15.7 | 47 | 87.6 | 14.1 |
| 19 | 87.2 | 14.6 | 48 | 84.4 | 18.5 |
| 20 | 85.0 | 17.7 | 49 | 84.4 | 18. |
| 21 | 85.0 | 17.7 | 50 | 84.2 | 18.8 |
| 22 | 89.0 | 12.4 | 51 | 84.2 | 18.8 |
| 23 | 87.0 | 14.9 | 52 | 85.7 | 16.7 |
| 24 | 88.1 | 13.5 | 53 | 85.2 | 17.4 |
| 25 | 90.1 | 11.0 | 54 | 88 .0 | 13.7 |
| 26 | 83.0 | 20.5 | 55 | 88.9 | 12.5 |
| 27 | 84.3 | 18.4 | 56 | 83.3 | 20.0 |
| 28 | 85.6 | 16.9 | 57 | 85.6 | 17.7 |
| 29 | 85.6 | 16.9 | | | |

ANALYSES OF SAMPLES OF BUTTER FROM THE EDUCATIONAL SCORING TEST FOR THE MONTH OF JUNE, 1909.

| Number. | Butter fat % | Over-run % | Number. | Butter fat % | Over-run % |
|---|---|---|---|---|---|
| 1 | 82.2 | 18.8 | 23 | 85.7 | 16.7 |
| 2 | 84.0 | 19.1 | 24 | 84.4 | 18.5 |
| 3 | 84.5 | 18.3 | 25 | 81.9 | 22.1 |
| 4 | 84.8 | 17.9 | 26 | 87.4 | 14.5 |
| 5 | 85.1 | 17.5 | 27 | 87.0 | 14.9 |
| 6 | 83.8 | 19.3 | 28 | Bottle broken | |
| 7 | 84.4 | 18.5 | 29 | 84.0 | 19.0 |
| 8 | 86.5 | 15.7 | 30 | 86.0 | 16.3 |
| 9 | 85.6 | 16.9 | 31 | 85.0 | 17.7 |
| 10 | 84.9 | 17.8 | 32 | 81.7 | 22.4 |
| 11 | 86.5 | 15.7 | 33 | 87.4 | 14.5 |
| 12 | 85.9 | 16.5 | 34 | 87.6 | 14.1 |
| 13 | 85.6 | 16.9 | 35 | 85.9 | 16.5 |
| 14 | 78.5 | 27.4 | 36 | 83.2 | 20.3 |
| 15 | 78.3 | 27.8 | 37 | 84.7 | 18.1 |
| 16 | 78.5 | 27.4 | 38 | 84.0 | 19.0 |
| 17 | 86.6 | 15.5 | 39 | 85.4 | 17.1 |
| 18 | 78.8 | 28.5 | 40 | 85.7 | 16.7 |
| 19 | 81.6 | 22.5 | 41 | 87.9 | 13.8 |
| 20 | 81.4 | 22.8 | 42 | 78.5 | 27.4 |
| 21 | 84.4 | 18.5 | 43 | 82.1 | 21.8 |
| 22 | 85.4 | 17.1 | | | |

# PROSECUTIONS.

# STATEMENT OF PROSECUTIONS.

## FISCAL YEAR ENDING JUNE 30, 1909.

| | |
|---|---|
| Cases pending July 1, 1908 | 7 |
| Cases commenced during fiscal year | 31 |

CASES DISPOSED OF.

| | |
|---|---|
| Before examining magistrates: | |
| Defendants bound over | 3 |
| Defendants discharged | 0 |
| In trial courts: | |
| Defendants convicted | 29 |
| Defendants acquitted | 1 |
| Cases pending July 1, 1909 | 8 |

IN TRIAL COURTS.

| Defendants. | Charge—Unlawful sale of. | County. | Sentence. |
|---|---|---|---|
| A. L. Hart | Resisting inspector | Wayne | Suspended. |
| R. W. Stevenson | Milk | Lenawee | Acquitted. |
| J. and E. Leipprandt | Buckwheat flour | Huron | Fined $25 and costs. |
| John J. Young | Milk | Ionia | Fined $5 and costs. |
| Daniel S. Dunn | Oleomargarine | Bay | Suspended. |
| Henry Jackson | Milk | Ionia | Fined $5 and costs. |
| M. Conroy | Milk | Ionia | Fined $5 and costs. |
| J. A. Schoonover | Milk | Lenawee | Fined $10 and costs. |
| Arthur Gillis | Milk | Lenawee | Fined $10 and costs. |
| Price Ford | Milk | Ingham | Fined $10 and costs. |
| John Roenicke | Milk | Saginaw | Fined $10 and costs. |
| August Reinks | Milk | Saginaw | Fined $10 and costs. |
| W. Holm | Milk | Saginaw | Fined $10 and costs. |
| E. Klink | Milk | Monroe | Fined $10 and costs. |
| John Veit | Milk | Monroe | Fined $10 and costs. |
| Karl F. Danzeisen | Milk | Monroe | Fined $10 and costs. |
| James Goff | Milk | Monroe | Fined $3 and costs. |
| Albert Johnson | Milk | Ingham | Fined $10 and costs. |
| John Post | Milk | Calhoun | Fined $10 and costs. |
| Joseph Reigle | Milk | Isabella | Fined $5 and costs. |
| Mrs. Lena Willet | Milk | Isabella | Fined $5 and costs. |
| William Donahue | Milk | Isabella | Fined $5 and costs. |
| Cook Hotel Company | Oleomargarine | Washtenaw | Fined $50. |
| Benjamin F. Foster | Vinegar | Allegan | Fined $50 and costs. |
| Chas. Timmons | Milk | Jackson | Fined $5.50 costs. |
| Thunder Bay Milling Co | Buckwheat flour | Alpena | Fined $25 and costs. |
| Samuel Wark | Milk | Isabella | Fined $5 and costs. |
| Martin Billow | Milk | Monroe | Fined $10 and costs. |
| Philip Wombold | Milk | Monroe | Fined $10 and costs. |
| Fay Gifford | Milk | Lenawee | Fined $15 and costs. |

# COURT PROCEEDINGS.

## FISCAL YEAR ENDING JUNE 30, 1909.

---

### CASE NO. 393.

PEOPLE VS. JOHN HART.

Charge: Selling oleomargarine artificially colored.
In police court, city of Detroit. Complaint made October 19, 1905. October 19, 1905: Defendant waived examination. Bound over to recorder's court for the city of Detroit for trial. Case pending.

### CASE NO. 397.

PEOPLE VS. JOHN HART.

Charge: Selling oleomargarine artificially colored.
In police court, city of Detroit. Complaint made October 19, 1905. October 21, 1905: Defendant waived examination. Bound over to the recorder's court for the city of Detroit for trial. Case pending.

### CASE NO. 419.

PEOPLE VS. ROBERT E. ELLSWORTH.

Charge: Selling crushed fruit containing formaldehyde.
In justice court, city of Alpena. Complaint made July 2, 1906. Case pending.

### CASE NO. 499.

PEOPLE VS. HENRY J. BRESSON.

Charge: Selling adulterated sausage.
In recorder's court, city of Kalamazoo. Complaint made November 20, 1907. December 28, 1907: Examination held. Case pending.

### CASE NO. 500.

PEOPLE VS. HENRY VREDEVOOGD.

Charge: Selling adulterated sausage.
In recorder's court, city of Kalamazoo. Complaint made November 20, 1907. December 28, 1907: Examination held. Case pending.

## CASE NO. 501.

PEOPLE VS. HENRY J. PHILLIPP.

Charge: Selling adulterated sausage.
In recorder's court, city of Kalamazoo. Complaint made November 20, 1907. December 28, 1907: Examination held. Case pending.

## CASE NO. 517.

PEOPLE VS. ALONZO L. HART.

Charge: Obstructing an inspector in the performance of her duties.
In police court, city of Detroit. June 9, 1908: Complaint made. June 23, 1908: Defendant convicted. Fined $50. Case appealed. February 18, 1909: In recorder's court defendant entered a plea of guilty. Sentence suspended.

## CASE NO. 518.

PEOPLE VS. R. W. STEVENSON.

Charge: Selling adulterated milk.
In justice court, city of Adrian. July 29, 1908: Complaint made. August 25, 1908: Defendant acquitted.

## CASE NO. 519.

PEOPLE VS. JOHN AND EDWIN LEIPPRANDT.

Charge: Selling adulterated buckwheat flour.
In justice court, city of Bad Axe. December 8, 1908: Complaint made. Defendant entered a plea of guilty. Fined $25 and costs.

## CASE NO. 520.

PEOPLE VS. JOHN HART.

Charge: Obstructing an inspector in the performance of his duties.
In police court, city of Detroit. December 31, 1908: Complaint made. April 23, 1909: Defendant convicted and fined $20 and costs. Time in which to file bill of exceptions asked for and granted. Case pending.

## CASE NO. 521.

PEOPLE VS. JOHN J. YOUNG.

Charge: Selling milk without a license.
In justice court, city of Ionia. January 4, 1909: Complaint made. Defendant entered a plea of guilty. Fined $5 and costs.

## CASE NO. 522.

PEOPLE VS. DANIEL S. DUNN.

Charge: Selling oleomargarine for butter.
In police court, city of Bay City. January 4, 1909: Complaint made. January

19, 1909: Defendant waived examination. February 4, 1909: Defendant entered a plea of guilty. Sentence suspended.

## CASE NO. 523.

PEOPLE VS. HENRY JACKSON.

Charge: Selling adulterated milk.
In justice court, city of Ionia. January 4, 1909: Complaint made. Defendant entered a plea of guilty. Fined $5 and costs.

## CASE NO. 524.

PEOPLE VS. M. CONBOY.

Charge: Selling adulterated milk.
In justice court, city of Ionia. January 4, 1909: Complaint made. Defendant entered a plea of guilty. Fined $5 and costs.

## CASE NO. 525.

PEOPLE VS. J. A. SCHOONOVER.

Charge: Selling adulterated milk.
In justice court, village of Morenci. January 7, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 526.

PEOPLE VS. ARTHUR GILLIS.

Charge: Selling adulterated milk.
In justice court, village of Morenci. January 7, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 527.

PEOPLE VS. PRICE FORD.

Charge: Having adulterated milk in his custody with intent to sell.
In justice court, city of East Lansing. February 5, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 528.

PEOPLE VS. JOHN ROENICKE.

Charge: Having adulterated milk in his custody with intent to sell.
In justice court, city of Saginaw. February 18, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 529.

PEOPLE VS. AUGUST REINKE.

Charge: Having adulterated milk in his custody with intent to sell.
In justice court, city of Saginaw. February 18, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 530.

PEOPLE VS. W. HOLM.

Charge: Having adulterated milk in his custody with intent to sell.
In justice court, city of Saginaw. February 18, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 531.

PEOPLE VS. E. KLINK.

Charge: Selling adulterated milk.
In justice court, city of Monroe. April 1, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 532.

PEOPLE VS. JOHN VEIT.

Charge: Selling adulterated milk.
In justice court, city of Monroe. April 1, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 533.

PEOPLE VS. KARL F. DANZEISEN.

Charge: Selling adulterated milk.
In justice court, city of Monroe. April 1, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 534.

PEOPLE VS. JAMES GOFF.

Charge: Selling adulterated milk.
In justice court, city of Monroe. April 1, 1909: Complaint made. Defendant entered a plea of guilty. Fined $3 and costs.

## CASE NO. 535.

PEOPLE VS. ALBERT JOHNSON.

Charge: Selling adulterated milk.
In justice court, city of Lansing. April 6, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 536.

PEOPLE VS. JOHN POST.

Charge: Selling adulterated milk.
In justice court, city of Battle Creek. April 7, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 537.

PEOPLE VS. JOSEPH REIGLE.

Charge: Selling adulterated milk.
In justice court, city of Mt. Pleasant. April 9, 1909: Complaint made. Defendant entered a plea of guilty. Fined $5 and costs.

## CASE NO. 538.

PEOPLE VS. MRS. LENA WILLETT.

Charge: Selling adulterated milk.
In justice court, city of Mt. Pleasant. April 8, 1909. Complaint made. April 21, 1909: Jury trial. Jury disagree. Later defendant entered a plea of guilty. Fined $5.

## CASE NO. 539.

PEOPLE VS. WILLIAM DONAHUE.

Charge: Selling adulterated milk.
In justice court, city of Mt. Pleasant. April 9, 1909: Complaint made. Defendant entered a plea of guilty. Fined $5 and costs.

## CASE NO. 540.

PEOPLE VS. COOK HOTEL COMPANY.

Charge: Using oleomargarine on table without displaying sign.
In justice court, city of Ann Arbor. April 15, 1909. Complaint made. Defendant bound over and entered plea of guilty. Fined $50.

## CASE NO. 541.

PEOPLE VS. BENJAMIN F. FOSTER OF THE ALLEGAN CIDER AND VINEGAR COMPANY.

Charge: Selling adulterated vinegar.
In justice court, city of Allegan. April 15, 1909: Complaint made. Defendant entered a plea of guilty. Fined $50 and costs.

## CASE NO. 542.

PEOPLE VS. ALONZO L. HART.

Charge: Selling colored oleomargarine.
In police court, city of Detroit. April 21, 1909: Complaint made. May 11, 1909: Examination held. Defendant waived examination and was bound over to the recorder's court for trial. Case pending.

## CASE NO. 543.

PEOPLE VS. CHAS. TIMMONS.

Charge: Selling milk without a license.
In justice court, city of Jackson. April 23, 1909: Complaint made. Defendant entered a plea of guilty. Fined $5.50 costs.

## CASE NO. 544.

PEOPLE VS. THUNDER BAY MILLING COMPANY.

Charge: Selling adulterated buckwheat flour.
In justice court, city of Mt. Pleasant. May 5, 1909: Complaint made. Defendant entered a plea of guilty. Fined $5 and costs.

## CASE NO. 545.

PEOPLE VS. SAMUEL WARK.

Charge: Selling adulterated milk.
In justice court, city of Mt. Pleasant. May 5, 1909: Complaint made. Defendant entered a plea of guilty. Fined $5 and costs.

## CASE NO. 546.

PEOPLE VS. MARTIN BILLOW.

Charge: Selling adulterated milk.
In justice court, city of Monroe. May 13, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 547.

PEOPLE VS. PHILIP WOMBOLD.

Charge: Selling adulterated milk.
In justice court, city of Monroe. May 13, 1909: Complaint made. Defendant entered a plea of guilty. Fined $10 and costs.

## CASE NO. 548.

PEOPLE VS. FAY GIFFORD.

Charge: Selling adulterated milk.
In justice court, village of Tecumseh. May 14, 1909: Complaint made. Defendant entered a plea of guilty. Fined $15 and costs.

# FINANCIAL STATEMENT.

# FINANCIAL STATEMENT.

From July 1, 1908, to June 30, 1909.

| | |
|---|---|
| Funds available July 1, 1908 | $35,000 00 |
| Fees collected for registration of creameries, cheese factories, etc. | 3,155 00 |
| License fees collected for concentrated commercial feeding stuffs | 3,000 00 |
| Fees collected for milk dealers' licenses | 1,954 00 |
| Fees collected for ice cream manufacturers' licenses | 1,900 00 |
| Test tubes sold | 21 00 |
| | $45,030 00 |

DISBURSEMENTS.

| | |
|---|---|
| A. C. Bird, Commissioner, salary | $2,000 00 |
| Colon C. Lillie, Deputy Commissioner, salary | 1,500 00 |
| Floyd W. Robison, State Analyst, salary | 2,000 00 |
| L. H. Van Wormer, Assistant Chemist, salary | 1,200 00 |
| M. J. Smith, Chief Clerk, salary | 1,008 26 |
| Ida M. Harris, Clerk, salary | 1,000 00 |
| Henry W. Kiekintveld, Clerk salary | 1,000 00 |
| Osmond C. Howe, Clerk, salary | 1,000 00 |
| F. S. Dunks, Clerk, salary | 1,000 00 |
| W. E. Robison, Clerk, salary | 1,000 00 |
| Dorothy Moxness, Clerk, salary | 713 90 |
| Maybel Oliver, Clerk, salary | 605 94 |
| B. L. Rosecrans, Clerk, salary | 266 34 |
| Maybel Mosher, Clerk, salary | 141 33 |
| S. T. Morse, Clerk, salary | 228 26 |
| N. P. Hull, Clerk, salary | 71 41 |
| John Munn, Clerk, salary | 82 40 |
| E. N. Gardner, Clerk, salary | 82 40 |
| Anna Smith, Clerk, salary | 13 59 |
| Myrta Gunn, Clerk, salary | 9 51 |
| E. A. Parker, Clerk, salary | 74 80 |
| N. L. Mattice, Clerk, salary | 23 94 |
| Gilman M. Dame, Regular Inspector, salary | 1,000 00 |
| James E. Jacklin, Regular Inspector, salary | 1,000 00 |
| Chas. H. Dear, Regular Inspector, salary | 1,000 00 |
| Joseph Schnitzer, Regular Inspector, salary | 873 61 |
| Edward C. Schultz, Regular Inspector, salary | 500 00 |
| E. A. Haven, Regular Inspector, salary | 936 09 |
| C. J. Bird, Regular Inspector, salary | 584 20 |
| F. O. Foster, Regular Inspector, salary | 415 80 |
| John B. Barron, Regular Inspector, salary | 94 77 |
| William Allen, Regular Inspector, salary | 163 90 |
| E. F. Marschner, Regular Inspector, salary | 372 71 |
| Claude A. Grove, Regular Inspector, salary | 336 10 |
| H. S. Bird, Regular Inspector, salary | 41 19 |
| N. P. Hull, Special Inspector, salary | 591 00 |
| H. Horton, Special Inspector, salary | 861 00 |
| John B. Barron, Special Inspector, salary | 849 00 |
| John Munn, Special Inspector, salary | 861 00 |
| E. S. Powers, Special Inspector, salary | 861 00 |

| | | |
|---|---|---|
| E. N. Gardner, Special Inspector, salary | $861 00 | |
| H. J. Credicott, Special Inspector, salary | 276 00 | |
| C. J. Bird, Special Inspector, salary | 39 00 | |
| F. O. Foster, Special Inspector, salary | 81 00 | |
| Lillah Haggerty, Special Inspector, salary | 101 33 | |
| A. J. Hutchins, Special Inspector, salary | 100 00 | |
| Maybel Mosher, Special Inspector, salary | 80 00 | |
| Chas. H. Spurway, Special Inspector, salary | 100 00 | |
| Anabelle Emorey, Special Inspector, salary | 57 00 | |
| A. Anderson, Special Inspector, salary | 66 00 | |
| N. J. Bullock, Special Inspector, salary | 18 00 | |
| M. Jensen, Special Inspector, salary | 46 50 | |
| W. C. Iversen, Special Inspector, salary | 150 00 | |
| Postage | 1,438 92 | |
| Chemicals, laboratory supplies, etc | 1,719 32 | |
| General expense (see statement following) | 13,532 07 | |
| By balance on hand July 1, 1909 | 41 | |
| | $45,030 00 | $45,030 00 |

GENERAL EXPENSE INCLUDES.

| | |
|---|---|
| A. C. Bird, expenses | $1,191 24 |
| Colon C. Lillie, expenses | 862 39 |
| Floyd W. Robison, expenses | 387 09 |
| L. H. Van Wormer, expenses | 5 30 |
| Osmond C. Howe, expenses | 537 35 |
| Fred S. Dunks, expenses | 59 99 |
| W. E. Robison, expenses | 50 53 |
| Gilman M. Dame, expenses | 733 28 |
| Joseph Schnitzer, expenses | 545 11 |
| James E. Jacklin, expenses | 565 03 |
| Chas. H. Dear, expenses | 902 84 |
| Edward C. Schultz, expenses | 86 47 |
| E. A. Haven, expenses | 1,005 56 |
| C. J. Bird, expenses | 198 44 |
| F. O Foster, expenses | 386 75 |
| Wm. Allen, expenses | 140 92 |
| E. F. Marschner, expenses | 48 91 |
| Claude A. Grove, expenses | 244 66 |
| H. S. Bird, expenses | 39 12 |
| N. P. Hull, expenses | 625 35 |
| H. Horton, expenses | 667 87 |
| John B. Barron, expenses | 576 28 |
| John Munn, expenses | 648 68 |
| E. S. Powers, expenses | 593•12 |
| E. N. Gardner, expenses | 899 34 |
| A. J. Hutchins, expenses | 59 63 |
| Chas. H. Spurway, expenses | 67 82 |
| Anabelle Emorey, expenses | 4 98 |
| A. Anderson, expenses | 114 55 |
| M. Jensen, expenses | 76 74 |
| W. C. Iverson, expenses | 15 91 |
| Express | 594 14 |
| Message | 324 13 |
| Freight and cartage | 18 12 |
| Incidentals | 254 43 |
| | $13,532 07 |

# CREAMERIES AND CHEESE FACTORIES.

# REGISTERED CREAMERIES, CHEESE FACTORIES, SKIMMING STATIONS, RECEIVING STATIONS, CONDENSED MILK FACTORIES AND MILK DEPOTS.

## FOR THE REGISTRATION YEAR BEGINNING APRIL 1, 1909.

### ALCONA COUNTY.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Alcona County Creamery, | Mrs. H. S. Johnson, | Harrisville. |

### ALLEGAN COUNTY.

| | | |
|---|---|---|
| Hilliards Creamery Co., | H. E. Parmelee, | Hilliards. |
| Wayland Creamery Co., | E. W. Pickett, | Wayland. |
| Dorr Creamery Co., | E. S. Botsford, | Dorr. |
| Merson Skimming Station, | Gobleville Creamery Co., | Gobleville. |
| Overisel Creamery Co., | John Peters, | Holland, No. 9. |
| Bentheim Creamery Co., | Albert Smoes, | Hamilton, No. 3. |
| Chicora Ski mming Station, | Chas. Linton. | Bloomingdale. |
| Oakland Creamery Co., | Gerrit Meyers, | Hamilton, No. 1. |
| Pearle Creamery Co., | Arnold Wilk, | Pearle. |
| Kellogg Creamery Co., | F. C. McClelland, | Allegan, No. 7. |
| East Saugatuck Creamery Co., | C. J. Lokker & Co., | Holland. |
| Fillmore Center Creamery Co., | Henry J. Kleinheksel, | Holland, No. 5. |
| Hopkins Creamery Co., | H. H. Stroud, | Hopkins. |
| Miner Lake Skimming Station, | Hopkins Creamery Co., | Hopkins. |
| Monterey Skimming Station, | Hopkins Creamery Co., | Hopkins. |
| Hamilton Skimming Station, | Zeeland Cheese & Butter Co., | Zeeland. |
| Springdale Cheese Factory, | M. W. Hicks, | Hopkins. |
| Salem Butter & Cheese Co., | Silas Loew, | Burnips Corners. |
| Otsego Creamery Co., | C. I. Curry, | Otsego. |
| Bradley Skimming Station, | Rudell Creamery, | Grand Rapids. |
| Moline Skimming Station, | Sanitary Milk Co., | Grand Rapids. |
| Allegan Creamery & Cold Storage, | Chas. Kemmer, | Allegan. |
| Daisy Creamery Co., | G. Heneveld, | Holland, No. 1. |
| C. H. Dole Milk Depot, | C. H. Dole, | Otsego. |
| Plainwell Creamery Co., | B. C. Shaylee, | Plainwell. |

### ALPENA COUNTY.

| | | |
|---|---|---|
| Alpena Farm Products Co., | W. B. Roberson, | Alpena. |

### ANTRIM COUNTY.

| | | |
|---|---|---|
| Kewadin Creamery, | R. L. Wilson, | Kewadin. |
| Central Lake Skimming Station, | Wm. McCool, | Traverse City. |
| Antrim Butter Co. (creamery), | Jackson & Elzenga, | Ellsworth. |
| Atwood Skimming Station, | Jackson & Elzenga, | Ellsworth. |
| Mancelona Creamery Co., | O. A. Keefer, | Mancelona. |

### ARENAC COUNTY.

| | | |
|---|---|---|
| D. Henry & Co. (creamery), | I. A. Shaver, | Omer. |
| Standish Creamery, | S. R. Burr, | Standish. |
| Sterling Cooperative Creamery Asso'n, | James Adams, | Sterling. |
| County Line Cheese Factory, | H. M. Schmidt Co., | Saginaw. |

### BARRY COUNTY.

| | | |
|---|---|---|
| Woodland Creamery Co., | B. S. Holly, | Woodland. |
| Hastings Crystal Creamery, | Rockwood & Pilkington, | Hastings. |
| Cold Springs Creamery Co., | H. E. Hendrick, | Middleville. |
| Nashville Creamery Co., | A. C. Siebert, | Nashville. |
| The Freeport Creamery Co., | Ezra Leonard, Sec'y, | Freeport. |
| Dowling Receiving Station, | Burns Creamery Co., | Grand Rapids. |

## BAY COUNTY.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Bay City Creamery Co., | Thos. E. Webster, | Bay City. |
| Pinconning Creamery, | Chas. Sass, | Pinconning. |
| Frankenlust Creamery, | J. C. Neumeyer, | Bay City Station A. |
| Berger Brick Cheese Factory, | John Berger, | Bay City, Station A. |
| Leroy Reynolds Cheese Factory, | Leroy Reynolds, | Bay City, Station A. |
| Michigan Cheese Factory, | Geo. A. Nuffer, | Bay City, No. 5. |
| Monitor Creamery, | Chas. Voss & Paul Lang, | Bay City, No. 7. |
| Valley Creamery, | Chas. Voss & Paul Lang, | Bay City, 403 E. John. |
| Garfield Cheese Factory, | Wm. H. Reid, | Pinconning. |
| Linwood Skimming Station, | T. E. Webster, | Bay City. |
| Pinconning Cream Station, | T. E. Webster, | Bay City. |
| Linwood Skimming Station, | Chas. Voss & Paul Lang, | Bay City, Station A. |
| Auburn Cheese Factory | J. M. Nuffer, | Auburn. |

## BARAGA COUNTY.

| | | |
|---|---|---|
| Baraga Creamery Co., | Frank Ennis, | Baraga. |

## BERRIEN COUNTY.

| | | |
|---|---|---|
| Coloma Creamery Asso'n, | Geo. W. Grant, | Coloma. |
| The Niles Creamery Co., | C. R. Smith, Pres., | Niles. |
| Twin City Creamery Co., (depot), | W. T. Parks, | Benton Harbor. |
| Galien Creamery Co., | E. A. Blakeslee, | Galien. |
| Berrien Center Elgin Creamery, | A. S. Ricketts, Pres., | Berrien Center. |
| Oronoko Creamery Co., | J. C. Hollenbeck., | Berrien Springs. |
| Pipestone Jersey Creamery, | Geo. T. Yetter, | Eau Claire, No. 2. |
| Benton Harbor Milk Depot, | Thorbum Bros., | Benton Harbor. |
| Dayton Creamery Co., | F. A. Koenigshof, Sec'y., | Dayton. |
| Watervliet Creamery Co., | W. M. Baldwin, Sec'y, | Watervliet. |
| Bishop Creamery Co., | Jack Bishop, | Buchanan. |
| Millburg Creamery Assn., | Chas. S. Reynolds, | Benton Harbor, No. 3. |
| Hinchman Creamery, | A. C. Miller, | Berrien Springs. |
| J. T. Clark, Milk Depot, | J. T. Clark, | St. Joseph. |
| Three Oaks Creamery, | J. Jacobson, | 3331 Indiana Ave, Chicago, Ill. |
| Buchanan Creamery Co., | S. R. Miles, | Buchanan. |
| E. E. Rouse Milk Depot. | E. E. Rouse, | Benton Harbor. |

## BRANCH COUNTY.

| | | |
|---|---|---|
| Batavia Creamery Co., | Smead & Straw, | Batavia. |
| Sherwood Receiving Station, | Beatrice Creamery Co., | Chicago, Ill. |
| Bronson Cooperative Creamery Co., | A. J. Ashbreck, | Bronson. |
| Union City Creamery Co., | J. E. Spore, | Union City. |
| Coldwater Creamery Co., | L. C. Waite, | Coldwater. |
| Quincy Creamery, | J. F. Power, | Quincy. |
| Dillon Cheese Factory, | Fred J. Dillon, | Hudson. |

## CALHOUN COUNTY.

| | | |
|---|---|---|
| Sanitarium Creamery, | Mich Sanitarium & Ben't Assn, | Battle Creek. |
| Marshall Creamery Co., | E. E. Simmons, | Marshall. |
| Tekonsha Receiving Station. | Beatrice Creamery Co., | Chicago, Ill. |
| W. H. Brown Milk Depot, | W. H. Brown, | Battle Creek. |
| Homer Creamery, | R. G. Washburn, | Litchfield. |
| Nottawa Valley Creamery Co., | Wisner & Russell, | Athens. |
| Tekonsha Cheese Co., | H. E. Taylor, | Tekonsha. |
| Albion Creamery, | E. DeMuth, | Albion. |
| Milk Producers Co., | F. W. Sullivan, | Battle Creek. |
| Joppa Skimming Station, | E. D. Bushnell, | East LeRoy. |
| Johnson Milk Depot, | Johnson Milk Co., | Battle Creek. |
| Burlington Creamery Co., | W. H. Melody, | Burlington. |

## CASS COUNTY.

| | | |
|---|---|---|
| Edwardsburg Creamery Co., | Wm. A. Runkle, | Edwardsburg. |
| Vandalia Creamery Co., | Geo. Longsduff, Pres. | Vandalia. |
| Jones Creamery Co., | R. L. Schell, | Jones. |
| Cassopolis Creamery Co., | H. P. Thomas, | Cassopolis. |
| Dowagiac Creamery & Butter Co., | S. H. Straub, | Dowagiac. |
| Marcellus Creamery Co., | L. W. Felker, | Marcellus. |

## CHARLEVOIX COUNTY.

| | | |
|---|---|---|
| X. L. Produce Co., | Henry Block, | Charlevoix. |
| Charlevoix Cheese Factory, | Peter Block, | Charlevoix, No. 1. |

## CHEBOYGAN COUNTY.

| | | |
|---|---|---|
| Alverno Creamery Co., | Alverno Creamery Co., | Alverno. |

## CHIPPEWA COUNTY.

| | | |
|---|---|---|
| W. H. Stribling Milk Depot, | W. H. Stribling, | Sault Ste. Marie. |

CLARE COUNTY.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Farwell Cheese Factory & Creamery, | R. J. Powell, | Farwell. |
| Lake Cheese Factory, | Powell & Tryon, | Lake. |
| Michigan Creamery Co., | Fred W. Glass, | Clare. |

CLINTON COUNTY.

| | | |
|---|---|---|
| Clinton Butter Co., | F. M. Spaulding, | St. Johns. |
| Waucousta Creamery, | Fred Foster, | Grand Ledge, No. 3. |
| Fowler Creamery Co., | N. H. Geller, | Fowler. |
| Curtis & Curtis Creamery, | Curtis & Curtis, | DeWitt. |
| Eureka Cheese Factory, | Bristol & Jefferys, | Eureka. |
| Maple Rapids Cheese Co., | C. E. Reist, | Maple Rapids. |
| Elsie Butter Factory, | Mich. Milk & Food Pr'cts Co., | Elsie. |
| Shepardsville Cheese Factory, | Mich. Milk & Food Pr'cts Co., | Elsie. |
| Ovid Cheese Factory, | Mich. Milk & Food Pr'cts Co., | Elsie. |
| Westphalia Creamery, | Anthony P. Arens, | Westphalia. |

DELTA COUNTY.

| | | |
|---|---|---|
| Chas. Elliott & Sons Cheese Factory, | Chas. Elliott & Sons, | Bark River. |
| Escanaba Creamery, | Martin Hendrickson, | Escanaba. |

DICKINSON COUNTY.

| | | |
|---|---|---|
| Norway Creamery Co., | F. Copeland, | Vulcan. |
| Best Bros. Creamery, | A. W. Best, | Iron Mountain. |

EATON COUNTY.

| | | |
|---|---|---|
| Vermontville Creamery, | Sakewitz, McMillan & Bowman, | Detroit. |
| Eaton Rapids Creamery, | A. M. Smith & Co., | Eaton Rapids. |
| Mulliken Creamery Co., | James Mead, | Grand Ledge, No. 2. |
| R. E. Stevens Receiving Station, | Ray E. Stevens, | Bellevue. |
| Charlotte Creamery, | W. T. Leonard & Co., | Norwood, N. Y. |
| Sunfield Creamery Co., | J. W. Eaton, | Sunfield. |
| Island City Creamery (Grand Ledge), | F. E. Allen, Mgr., | Grand Ledge. |

EMMET COUNTY.

| | | |
|---|---|---|
| E. G. LUDLOW Milk Depot, | E. G. Ludlow, | Star Route, Petoskey. |

GENESEE COUNTY.

| | | |
|---|---|---|
| Standard Butter Co., (creamery), | H. A. Amerman, Mgr., | Flushing. |
| Goodrich Dairy Assn., | S. H. Pierson, | Goodrich. |
| Vienna Cheese Factory Assn., | J. A. Anderson, | Clio. |
| Thetford Cheese Co., | L. J. Benjamin, | Clio. |
| State Road Cheese Factory, | O. M. Field, | Clio. |
| D. W. Richards Cheese Factory, | D. W. Richards, | Flint. |
| L. Freeman Creamery & Cheese Fac., | Leonard Freeman Cheese Co., | Fenton. |
| Davison Creamery, | Leonard Freeman Cheese Co., | Fenton. |
| Baker Sanitary Milk Co., | Thomas H. Baker, | Flint, 2nd and Detroit Sts. |
| A. D. Borton Milk Depot, | A. D. Borton, | Flint, No. 3. |
| A. J. Ritchter Milk Depot, | A. J. Ritcher, 750 Ham'ton Av., | Flint. |
| F. C. Torry Milk Depot, | F. C. Torry, 814 N. Saginaw, | Flint. |
| Grand Blanc Creamery, | Thompson & Campbell, | Grand Blanc. |
| Floyd W. Blanchard Milk Depot, | Floyd W. Blanchard, | Fenton, box 572. |

GLADWIN COUNTY.

| | | |
|---|---|---|
| Wagerville Dairy Co., | Wesley Schlichter, | Brown City. |

GOGEBIC COUNTY.

| | | |
|---|---|---|
| Gogebic Range Creamery, | Gogebic Range Creamery Co., | Ironwood. |

GRAND TRAVERSE COUNTY.

| | | |
|---|---|---|
| Traverse City Elgin Creamery, | Wm. A. McCool, | Traverse City. |
| C. H. Priday Milk Depot, | C. H. Priday, | Traverse City. |
| Albert Kilmer Milk Depot, | Albert Kilmer, 722 6th St., | Traverse City. |
| G. W. Barnard Milk Depot, | G. W. Barnard, 905 Wash'ton, | Traverse City. |
| A. W. Weidoft Milk Depot, | A. W. Weidoft, | Traverse City. |
| Queen City Dairy Milk Depot, | Guy DeLong, | Traverse City. |

GRATIOT COUNTY.

| | | |
|---|---|---|
| Middleton Cheese Factory, | H. P. Fitzpatrick, | Middleton. |
| Central Mich. Produce Co., | Central Mich. Produce Co., | Alma. |
| Cream-O Cheese Co., | C. E. Chittenden, | Ashley. |
| Perrinton Cheese Factory, | W. A. Dear, | Perrington. |
| Ola Cheese Factory, | Peter J. Wolf & Sons, | Pompeii, No. 1. |
| Bannister Cheese Factory, | Mich. Milk & Food Pr'cts Co., | Elsie. |
| Ithaca Creamery, | Doran & McCredie, | Ithaca. |
| Breckenridge Creamery, | F. Eldridge, Mgr., | Breckenridge. |

## HILLSDALE COUNTY.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Camden Creamery, | Sakewitz, McMillan & Bowman, | Detroit. |
| D. S. Lickley Cheese Factory, | D. S. Lickley, | Pittsford. |
| Hillsdale Elgin Creamery Co., | F. M. Smith, | Hillsdale. |
| Allen Skimming Station, | Hillsdale Elgin Creamery Co., | Hillsdale. |
| Frontier Cheese Factory, | James Crow, | Frontier. |
| Waldron Cheese Factory, | Waldron Cheese Co., | Waldron. |
| Litchfield Butter Co., | R. G. Washburn, Mgr., | Litchfield. |
| Somerset Cheese Factory, | C. L. Davis, | Somerset. |
| Montgomery Cheese Factory, | Montgomery Cheese Co., | Montgomery. |
| Prattsville Cheese Factory, | B. L. Peebles, | Adrian. |
| Treat Cheese Factory, | B. L. Peebles, | Adrian. |
| Bennett Cheese Factory, | O. F. Foster, | Hudson. |
| South Pittsford Cheese Factory, | Fred J. Dillon, | Hudson. |
| North Adams Creamery Co., | R. C. Cummings, Mgr., | North Adams. |
| Reading Creamery, | W. T. Leonard & Co., | Norwood, N. Y. |
| North Wheatland Cheese Factory, | M. C. Dowd, | Addison, No. 1. |
| Lakeside Creamery Co., | F. M. Hodge, Mgr., | Mosherville. |
| Osseo Cheese Factory, | A. Perrin & Co., | Osseo. |
| Shady Side Cheese Factory, | Chas. Warner, | Osseo, No. 26. |
| Cheese Factory (Ransom Twp.), | Gleason Bros. & W. E. Cockin, | Waldron. |
| Pittsford Cheese Factory, | C. C. Colvin & Son, | Hudson. |
| Jerome Cheese Factory, | J. B. Loomis, | Hudson. |
| Adams Cheese Factory, | M. M. Hinchley, | Pittsford. |

## HOUGHTON COUNTY.

| | | |
|---|---|---|
| Lake Linden Creamery Co., | E. F. Prince, Sec'y, | Lake Linden. |

## HURON COUNTY.

| | | |
|---|---|---|
| Ubly Condensed Milk Factory, | Page Milk Co., | Ubly. |
| Huron County Creamery Co., | John A. McLean, Mgr., | Pigeon. |
| Ruth Creamery Co., | G. Seltz, | Ruth. |
| Am. Farm Products Co. (Bad Axe), | American Farm Products Co., | Bad Axe. |
| Redman Cheese Factory, | E. F. Kinch, | Port Hope. |
| Port Hope Cheese Factory, | S. T. Jones, | Port Hope. |
| Pigeon Creamery, | Frank Kinch, | Grindstone City. |
| Harbor Beach Creamery, | Frank Kinch, | Grindstone City. |
| Grindstone City Creamery, | Frank Kinch, | Grindstone City. |
| Kinde Creamery, | Frank Kinch, et al., | Grindstone City. |
| Kilmanagh Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |
| Pigeon Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |
| Elmhurst Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |
| Pinnebog Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |
| Sebewaing Receiving Station, | American Farm Products Co., | Bad Axe. |
| Elkton Receiving Station, | American Farm Products Co., | Bad Axe. |
| Bad Axe Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Elkton Cheese Factory, | Rice Bros., | Elkton. |
| Sebewaing Creamery, | Ammerman Bros. | Sebewaing. |

## INGHAM COUNTY.

| | | |
|---|---|---|
| Leslie Butter Co., | Geo. J. Pullen, | Leslie. |
| Lansing Condensed Milk Factory, | Michigan Condensed Milk Co., | 44 Hudson St., New York. |
| Winans' Milk Depot, | N. H. Winans & Sons, | Lansing. |
| Cedar River Creamery & Cheese Fac., | Smith & Gilbert, | Webberville. |
| Williamston Cheese Factory, | Bivins & Bennett, | Williamston. |
| Bell Oak Cheese Factory, | E. M. DePey, | Webberville, No. 3. |
| J. F. Smith & Son Milk Depot, | J. F. Smith & Son, | Lansing. |
| W. H. Hunter Milk Depot, | W. H. Hunter, | Lansing, No. 3. |
| Mason Creamery Co., | J. M. Collier, | Mason. |

## IONIA COUNTY.

| | | |
|---|---|---|
| Lake Odessa Condensed Milk Factory, | Lake Odessa Milk Co., | Lake Odessa. |
| Portland Creamery, | Arthur Nunneley, | Portland. |
| Saranac Dairy Co., | C. Romander, | Saranac. |
| Hubbardston Creamery, | J. S. Doten & Wife, | Hubbardston. |
| Palo Skimming Station, | J. S. Doten & Wife, | Hubbardston. |
| Orleans Creamery Assn., | Chris Liebum, | Orleans. |
| Clarksville Creamery Co., | John Kloosterman, | Clarksville. |
| Pewamo Creamery, | Pennington & Love, | Pewamo. |

## IOSCO COUNTY.

| | | |
|---|---|---|
| Hemlock Cheese Factory, | H. M. Schmidt Co., | Saginaw. |
| Hale Cheese Factory, | H. M. Schmidt Co., | Saginaw. |

## ISABELLA COUNTY.

| | | |
|---|---|---|
| Mt. Pleasant Condensed Milk Factory, | Michigan Condensed Milk Co., | 44 Hudson St., New York. |
| Blanchard Creamery, | Blanchard Butter Co., | Blanchard. |
| Herrick Full Cream Cheese Factory, | Herrick Cheese Co., | Clare. |

JACKSON COUNTY.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Parma Butter Co., | Parma Butter Co., | Parma. |
| Lakeside Elgin Butter Co., | Frank H. Shelly, Mgr., | Grass Lake. |
| Crystal Creamery Co., | F. E. Hungerford, Mgr., | Concord. |
| Jackson Condensed Milk Factory, | Michigan Condensed Milk Co., | 44 Hudson St., New York. |
| Clarks Lake Creamery Co., | B. G. Peterson, | Clarks Lake. |
| Brooklyn Creamery Co., | A. W. Brooks, | Brooklyn. |
| Springport Creamery Co., | Frank Dickinson, | Springport. |
| Maple Hill Creamery, | F. B. Dent, | Hanover. |
| J. A. Fowler Milk Depot, | J. A. Fowler, | Jackson, No. 5. |
| Elmer Creamery Co., | Elmer Bros., | Devereaux. |

KALAMAZOO COUNTY.

| | | |
|---|---|---|
| Schoolcraft Creamery Co., | Geo. Gilchrist, | Schoolcraft. |
| Michigan Butter Co., | N. J. Whitney, | Kalamazoo. |
| Kalamazoo Creamery Co., | N. J. Whitney, | Kalamazoo. |
| Scotts Creamery Co., | Archie R. Pierce, | Scotts. |
| Alamo Valley Creamery Co., | N. J. Whitney, | Kalamazoo. |
| Riverside Creamery, | F. O. Crossfield, | Galesburg. |
| Bishop Creamery, Vicksburg, | Bishop Creamery Co., | Buchanan. |
| Climax Skimming Station, | W. H. Brown, | Battle Creek. |
| Dairymens Milk Co., | Dairymens Milk Co., | 116 N. Rose, Kalamazoo. |

KALKASKA COUNTY.

| | | |
|---|---|---|
| Boardman Creamery Co., | L. A. Young, Mgr., | South Boardman. |

KENT COUNTY.

| | | |
|---|---|---|
| Byron Center Creamery, | Wm. J. Patterson, Mgr., | Byron Center. |
| Sparta Creamery Co., | H. A. Black, Mgr., | Sparta. |
| Rudell Creamery, | Rudell Creamery Co., | Grand Rapids. |
| Cedar Springs Creamery, | Rudell Creamery Co., | Grand Rapids. |
| Grand Rapids Creamery, | Henry J. Zoet, Mgr., | 240 Alpine, Grand Rapids. |
| W. R. Roach & Co., | E. K. Smith, Mgr., | Kent City. |
| Valley City Creamery & Milk Depot, | M. T. McNamara, | 68 Lake Ave., Grand Rapids. |
| Vonk & Son Creamery & Milk Depot, | Vonk & Son, 802 Wealthy, Ave. | Grand Rapids. |
| Burns Creamery Co., | W. S. Burns, | 80 Louis St., Grand Rapids. |
| Cedar Springs Creamery, | Burns Creamery Co., | Grand Rapids. |
| Sanitary Milk Co. (creamery and depot) | Sanitary Milk Co., | Grand Rapids. |
| Caledonia Skimming Station, | Sanitary Milk Co., | Grand Rapids. |
| Lowell Cheese Factory, | Mich. Milk & Food Pr'cts Co., | Elsie. |
| Boyland Creamery, | J. F. Boyland, | Grand Rapids. |
| Walter Walbridge Milk Depot, | Walter Walbridge, | Dutton, No. 60. |
| Sand Lake Creamery, | C. D. Crittenden, | Grand Rapids. |
| Alto Skimming Station, | Rudell Creamery, | Grand Rapids. |
| Lowell Cream Station, | Pennington & Love., | Pewamo. |

LAKE COUNTY.

| | | |
|---|---|---|
| Luther Cream Station, | Marion Creamery Co., | Marion. |

LAPEER COUNTY.

| | | |
|---|---|---|
| Lapeer County Creamery, | R. F. Frary, | Lapeer. |
| Hadley District Dairy Association, | Frank Hadley, Mgr., | Hadley. |
| Imlay City Creamery Company, | Wm. Muir, Mgr., | Imlay City. |
| Peoples Creamery, | Thomas Stacey, | North Branch. |
| Clifford Cheese Factory, | J. F. Cartwright & Sons, | Mayville. |
| Lum Creamery, | Fox & Smith, | Lum. |
| W. H. McCormick Cream Depot, | W. H. McCormick, | Imlay City. |
| North Branch Cream Station, | American Farm Products Co., | Bad Axe. |
| Metamora Butter Co., | B. A. Hillman, Mgr., | Metamora. |
| Imlay City Receiving Station, | Port Huron Creamery Co., | Port Huron. |

LENAWEE COUNTY.

| | | |
|---|---|---|
| Riverside Cheese Factory, | Baker & Jurden, | Adrian. |
| Addison Cheese Factory, | The Central Supply Co., | Addison. |
| Rorick Cheese Factory, | G. H. Rorick, | Seneca. |
| Macon Creamery Co., | Granville Mills, | Tecumseh. |
| Lakeside Cheese Co., | C. H. DuBois, | Devils Lake. |
| Tecumseh Butter Co., | Birdsall & McCoy, | Tecumseh. |
| Cheese Factory (Rome village), | Riverside Company, | Adrian. |
| Cheese Factory (Fairfield Twp.), | Riverside Company, | Adrian. |
| Morenci Condensed Milk Factory, | Ohio Dairy Co., | Toledo, Ohio. |
| Onsted Cheese Factory, | L. R. Connor, | Onsted. |
| Lime Creek Cheese Factory, | O. F. Foster & Son, | Hudson. |
| Posey Lake Cheese Factory, | H. M. Carmichael, | Hudson. |
| Britton Cheese Factory, | H. M. Carmichael, | Hudson. |
| Hudson Creamery Co. (Hudson), | H. E. Loyster, | Hudson. |

LENAWEE COUNTY—Continued

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Hudson Creamery Co. (Cadmus), | H. E. Loyster, | Hudson. |
| Rollin Skimming Station, | H. E. Loyster, | Hudson. |
| Cadmus Cheese Factory, | C. H. Garnsey, | Cadmus. |
| Helvetia Condensed Milk Factory, | R. A. Whitney, Mgr., | Hudson. |
| North Morenci Cheese Factory, | C. C. Colvin & Son, | Hudson. |
| Clayton Cheese Factory, | C. C. Colvin & Son, | Hudson. |
| Medina Cheese Factory, | C. C. Colvin & Son, | Hudson. |
| Warsaw Cheese Factory, | B. L. Peebles, | Adrian. |
| Raisin Valley Receiving Station, | Tecumseh Butter Co., | Tecumseh. |
| Maple City Creamery, | DeLano & Barnaby, | Adrian. |
| Lenawee Junction Milk Depot, | Clover Leaf Creamery Co., | Toledo, Ohio. |
| Palmyra Milk Depot, | Clover Leaf Creamery Co., | Toledo, Ohio. |
| Munson Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| South Dover Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| Canandaigua Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| Fruit Ridge Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| Sand Creek Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| Bimo Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| Weston Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| Fairfield Twp., Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| Jasper Cheese Factory, | Geo. B. Horton & Son, | Fruit Ridge. |
| W. A. Beebe Cheese Factory, | W. A. Beebe, | Tipton. |
| Wolf Creek Cheese Factory, | Stickney & Corley, | Adrian, No. 4. |
| Blissfield Creamery Co., | Wm. D. Lane, Mgr., | Blissfield. |

LIVINGSTON COUNTY.

| | | |
|---|---|---|
| Brighton Elgin Butter Co., | J. H. Gambil, | Brighton. |
| Howell Condensed Milk Factory, | Michigan Condensed Milk Co., | 44 Hudson St., New York. |
| Michigan Creamery Co., | Earl Day, Mgr., | Pinckney. |
| Howell Creamery, | Howell Mfg. Co., | Howell. |

MACOMB COUNTY.

| | | |
|---|---|---|
| Romeo Elgin Creamery, | Romeo Elgin Creamery Co., | Romeo. |
| Cady Milk Depot, | Detroit Creamery Co., | Detroit. |
| Mt. Clemens Skim. Sta. & Milk Depot, | Detroit Creamery Co., | Detroit. |
| Utica Milk Depot, | Detroit Creamery Co., | Detroit. |
| Armada Creamery, | C. M. Partch, | Armada. |
| New Baltimore Creamery Co., | Chris Schlosser, | New Baltimore. |
| Davis Creamery Co., | I. W. Ellis, | Davis. |
| Sellick Skimming Station, | Davis Creamery Co., | Davis. |
| Washington Skimming Station, | Davis Creamery Co., | Davis. |
| Utica Cooperative Creamery Assn., | C. H. Firman, Sec'y. | Utica. |
| Shelby Skimming Station, | Utica Cooperative Cmry Assn., | Utica. |
| Macomb Skimming Station, | Utica Cooperative Cmry Assn., | Utica. |
| Chesterfield Creamery, | Chesterfield Creamery Co., | Mt. Clemens. |
| Waldenburg Skimming Station, | Chesterfield Creamery Co., | Mt. Clemens. |
| Meade Skimming Station, | Chesterfield Creamery Co., | Mt. Clemens. |
| Mt. Clemens Skimming Station, | Chesterfield Creamery Co., | Mt. Clemens. |
| Gatz Creamery Co., | J. F. Gatz, | Mt. Clemens. |
| Blue Ribbon Creamery, | W. H. Chapman & Son, | New Baltimore. |
| Centerline Milk Depot, | Cottage Grove Creamery Co., | 104 Beals Ave., Detroit. |
| Warren Milk Depot, | Cottage Grove Creamery Co., | Detroit. |
| Keenan Bros. Cheese Factory, | M. G. Keenan, | Memphis. |
| New Haven Elgin Creamery Co., | New Haven Elgin Creamery Co. | New Haven. |
| Leroy Twp. Skimming Station, | New Haven Elgin Crmry Co., | New Haven. |
| Ray Twp. Skimming Station, | New Haven Elgin Crmry Co., | New Haven. |
| Memphis Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Macomb Skimming Station, | Gatz Creamery Co., | Mt. Clemens. |
| Richmond Creamery Co., | Wm. Zentgrebe, | Richmond. |

MANISTEE COUNTY.

| | | |
|---|---|---|
| Bear Lake Creamery, | E. V. O'Rouke, | Bear Lake. |
| Kaleva Cream Station, | E. V. O'Rouke, | Bear Lake. |

MASON COUNTY.

| | | |
|---|---|---|
| Alpha Creamery (Scottville), | Alex Kahlet. | Ludington. |

MECOSTA COUNTY.

| | | |
|---|---|---|
| Remus Cooperative Association, | J. J. Diehm, | Remus. |
| Big Rapids Creamery, | Rudell Creamery, | Grand Rapids. |
| Barryton Creamery, | E. M. Lamos, | Barryton. |
| Morley Receiving Station, | Rudell Creamery, | Grand Rapids. |

MENOMINEE COUNTY.

| | | |
|---|---|---|
| Hugh Phillips Milk Depot, | Hugh Phillips, | Escanaba. |
| Ingalls Creamery, | H. J. Grell Butter & Egg Co., | Ingalls. |
| Daggett Creamery, | Daggett Creamery Co., | Daggett. |

MENOMINEE COUNTY—Continued.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Pine Hill Dairy, | C. I. Cook, | Menominee. |
| Stephenson Cheese Factory, | John Dupont, | Stephenson, No. 1. |
| Wilson Cheese Factory, | Wm. Bellefevil, | Wilson. |
| Milk Depot (Menominee), | Pine Hill Dairy, | Menominee. |
| Palestine Cheese Factory, | John Danielson, | Stephenson. |

MIDLAND COUNTY.

| | | |
|---|---|---|
| Vasold Bros. Creamery, | Vasold Bros., | Midland. |
| Coleman Creamery Co., | Chas. H. Keyworth, Mgr., | Coleman. |

MISSAUKEE COUNTY.

| | | |
|---|---|---|
| Lucas Creamery Co., | Dick Lucas, | Lucas. |
| Falmouth Creamery Co., | Casper Dick, | Falmouth. |

MONROE COUNTY.

| | | |
|---|---|---|
| South Rockwood Butter & Cheese Co., | J. W. Harris, Mgr., | South Rockwood. |
| Monroe Butter & Cheese Co., | Andrew Vivian, Mgr., | Monroe. |
| La Salle Skimming Station, | Monroe Butter & Cheese Co., | Monroe. |
| Skimming Station (Frenchtown Twp.), | Monroe Butter & Cheese Co., | Monroe. |
| Hazelwood Creamery, | R. G. Peters, | Petersburg. |
| Dundee Skimming Station, | Towars Wayne County Cmry, | Detroit. |
| Maybee Skimming Station, | Towars Wayne County Cmry, | Detroit. |
| Excelsior Creamery Co., | John Martin, Mgr., | Ida. |
| Strasburg Skimming Station, | Excelsior Creamery Co., | Ida. |
| Yargerville Skimming Station, | Excelsior Creamery Co., | Ida. |
| Grape Cheese Factory, | D. A. Jenkins, | Ida. |
| Gert Cheese Factory, | Gilhouse & Emerson, | Riga. |
| S. J. Pettie Creamery, | S. J. Pettie, | Riga, No. 2. |
| Dundee Condensed Milk Fac. & Sta., | Ohio Dairy Co., | Toledo, Ohio. |
| Newport Creamery, | C. W. Beckham, | Toledo, Ohio. |
| Lambertville Milk Depot, | Clover Leaf Creamery Co., | Toledo, Ohio. |
| Bedford Twp. Milk Depot, No. 1, | Clover Leaf Creamery Co., | Toledo, Ohio. |
| Bedford Twp. Milk Depot, No. 2, | Clover Leaf Creamery Co., | Toledo, Ohio. |
| Carleton Skimming Station, | J. W. Simcock, | Carleton. |

MONTCALM COUNTY.

| | | |
|---|---|---|
| Vestaburg Butter Co., | Vestaburg Butter Co., | Vestaburg. |
| Vickeryville Cheese Factory, | M. C. Johnson, | Vickeryville. |
| Greenville Cheese Co., | S. C. Woodruff, | Greenville. |
| Butternut Cheese Factory, | J. M. Fitzpatrick, | Butternut. |
| Amble Creamery, | Amble Creamery Co., | Amble. |
| Crystal Cheese Factory, | Wallace A. Grimm, | Crystal. |
| Carson City Cheese Factory, | Wilson & Miner, | Carson City. |
| Howard City Receiving Station, | Rudell Creamery, | Grand Rapids. |
| F. G. Rice Milk Depot (Six Lakes), | F. G. Rice, | Six Lakes. |
| J. W. Gaffield Cream Depot, | J. W. Gaffield, | Six Lakes. |
| G. E. Cornell Cream Depot, | G. E. Cornell, | Six Lakes. |

MUSKEGON COUNTY.

| | | |
|---|---|---|
| Holton Creamery Co., | Oscar A. Martin, Mgr., | Holton. |
| Casnovia Creamery, | Rudell Creamery, | Grand Rapids. |
| Lonsdale Creamery, | D. E. Staples, | Montague. |
| Ravenna Creamery, | E. S. Powers, | Ravenna. |
| Dalton Creamery & Milk Depot, | E. J. Peterson, | Muskegon. |
| Peerless Creamery & Milk Depot, | A. Yager, | Muskegon. |

NEWAYGO COUNTY.

| | | |
|---|---|---|
| Rouge River Creamery Co., | J. VanderMolen, Mgr., | Grant, No. 3. |
| Bishop Creamery Co., | John Dobbin, Mgr., | Newaygo, No. 1. |
| Reeman Cooperative Creamery, | Reeman Cooperative Cmry Co., | Reeman. |
| Fremont Creamery Co., | H. Rosema, Mgr., | Fremont. |
| Blue Line Creamery, | B. C. Martin, | White Cloud. |
| Creamery (Grant Village). | Rudell Creamery, | Grand Rapids. |
| Crystal Lake Creamery Co., | G. W. Puff, Mgr., | Wooster. |
| Ensley Skimming Station, | C. D. Crittenden, | Grand Rapids. |

OAKLAND COUNTY.

| | | |
|---|---|---|
| North Farmington Cheese Factory, | M. B. Armstrong, | Pontiac. |
| Clarenceville Milk Depot, | Towars Wayne County Cmry, | Detroit. |
| New Hudson Cheese Factory, | E. J. Rice, | New Hudson. |
| Yates Milk Depot, | Detroit Creamery Co., | Detroit. |
| Milk Depot, Royal Oak Twp., | Peter Backer, | Royal Oak. |
| South Lyon Creamery Co., | H. C. Stevenson, Mgr., | South Lyon. |
| Daniel Park Milk Depot (Southfield), | Daniel Parks, | Redford, No. 1. |
| Johnson Milk Depot (Clarenceville), | S. M. Johnson, | Farmington. |
| Stoll Bros. Milk Depot, | Stoll Bros., | Redford, No. 1. |
| Walled Lake Cheese Factory, | H. A. Smith, | Wixom. |

OAKLAND COUNTY—Continued.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Wixom Cheese Factory, | H. A. Smith, | Wixom. |
| Farmington Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |
| Novi Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |
| Springbrook Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |
| Powers Cheese Factory (Farm'ton Tp.), | Fred M. Warner Cheese Co., | Farmington. |
| Franklin Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |
| Milk Depot (Southfield), | Fred Stoll, | Redford. |
| Commerce Cheese Factory, | Martin Richardson, | Commerce. |
| Milford Cheese Factory, | Clarence L. Pearson, | Milford. |
| Northville Condense Milk & Cheese Co., | Warner & Richardson, | Northville. |

OCEANA COUNTY.

| | | |
|---|---|---|
| Shelby Dairy Co. (creamery), | Shelby Dairy Co., | Shelby. |
| Oceana Creamery Co., | E. M. Fuller, Mgr., | Montague. |
| Rothburg Skimming Station, | D. E. Staples, | Montague. |
| Shelby & New Era Creamery Co., | Geo. C. Myers, Mgr., | Shelby. |
| White River Creamery, | E. S. Powers, | Ravenna. |
| Hart Creamery, | E. S. Powers, | Ravenna. |
| Rothburg Creamery Station, | E. J. Peterson, | Muskegon. |

OGEMAW COUNTY.

| | | |
|---|---|---|
| Good-Rich Creamery (West Branch), | Frances O. Goodrich, | Lucia, N. Mex. |
| Prescott Creamery Co., | Snider & Hatter, | Prescott. |

ONTONAGON COUNTY.

| | | |
|---|---|---|
| Ontonagon Valley Creamery Co., | Carl J. Hatfield, Mgr., | Ewen. |

OSCEOLA COUNTY.

| | | |
|---|---|---|
| Alpha Creamery (Reed City), | Axel Kehlet, | Ludington. |
| LeRoy Creamery, | D. B. Ketchum, | LeRoy. |
| Evart Creamery Co., | Evart Creamery Co., | Evart. |
| Hersey Creamery, | F. S. Smith, | Hersey. |
| Tustin Creamery, | D. B. Ketchum, | LeRoy. |
| Reed City Cream & Receiving Station, | Wm. F. Mitchell, | Reed City, |
| Marion Creamery, | C. H. Keyworth, Mgr., | Coleman. |

OTTAWA COUNTY.

| | | |
|---|---|---|
| Jamestown Cooperative Creamery Co., | Jacob Nyenhuis, | Hudsonville, No. 3. |
| Jamestown Skimming Station, | Jamestown Cooperative Cry.Co. | Hudsonville, No. 3. |
| Vriesland Creamery Co., | Henry Rock, | Vriesland. |
| Borculo Creamery Co., | H. Koop, | Borculo. |
| Banner Creamery Co., | Levi J. Fellows, | Zeeland, No. 1. |
| Holland Crystal Creamery, | C. J. Lokker & Co., | Holland. |
| Noordeloos Skimming Station, | C. J. Lokker & Co., | Holland. |
| Interurban Creamery Co., | John Van Rhee, | Hudsonville, No. 4. |
| Blendon Skimming Station, | Zeeland Cheese & Butter Co., | Zeeland. |
| Zeeland Cheese & Butter Co., | John Brouwers, | Zeeland. |
| Beaverdam Cooperative Creamery Co., | John Jager, | Zeeland, No. 2. |
| Allendale Creamery Co., | Mrs. H. T. Pierson, | Allendale. |
| Crisp Creamery Co., | A. J. Nienhuis, | Holland, No. 2. |
| Drenthe Creamery Co., | Henry Wever, | Zeeland, No. 3. |
| Conklin Receiving Station, | Burns Creamery Co., | Grand Rapids. |
| Coopersville Cooperative Creamery Co., | Wm. D. Dubendorf, Mgr., | Coopersville. |
| Berlin Skimming Station, | Cooperative Creamery Co., | Coopersville. |
| Nuncia Skimming Station, | Cooperative Creamery Co., | Coopersville. |
| Harlem Skimming Station, | Zeeland Cheese & Butter Co., | Zeeland. |
| Hudsonville Farmers Creamery Co., | John Vander Heide, | Hudsonville, No. 2. |
| Bauer Creamery Co., | Wm. Flipsey, | Hudsonville, No. 6. |
| Blendon Skimming Station, | Bauer Creamery Co., | Bauer. |
| Star Dairy Milk Depot, | Henry Grevengoed, | Holland. |
| Eastmanville Skimming Station, | Burns Creamery Co., | Grand Rapids. |
| Agnew Creamery, | L. Wollenzin, | Agnew. |

SAGINAW COUNTY.

| | | |
|---|---|---|
| Standard Butter Co. (Burt), | H. A. Ammerman, | Burt. |
| Vasold Bros. Creamery (Freeland), | Vasold Bros., | Midland. |
| Lawndale Creamery, | C. F. Berger, | Saginaw, No. 11. |
| Frankenmuth Cheese Mfg. Co., | L. Hubinger, | Frankenmuth. |
| Union Cheese Mfg. Co., | Conrad Schreiner, | Frankenmuth, No. 2. |
| Wilson Cheese Factory, | Fred L. Kent, | Birch Run. |
| Chesaning Cream Station, | Chas. J. Lee, | Chesaning. |
| Blackmar Cheese Co., | W. A. Judd, | Fosters, No. 1. |
| Maple Grove Elgin Butter Factory, | M. D. Ireland, | Chesaning. |
| Star Cheese Factory, | John Schellhas, | Frankenmuth, No. 1. |
| Standard Cheese Co., | Wm. Block, | Birch Run, No. 1. |
| Oakley Butter Co. Creamery, | Oakley Butter Co., | Oakley. |
| Chapin Cheese Co., | G. C. Peters, | Chapin. |

SAGINAW COUNTY—Continued.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Hemlock Creamery Co., | Wm. Pahl, | Hemlock. |
| Cass River Cheese Factory, | Hubinger Bros., | Frankenmuth. |
| Birch Run Cheese Factory, | Birch Run Cheese Co., | Birch Run. |
| Milk Depot (Saginaw), | C. H. Parker, 314 N. 3d Ave., | Saginaw. |
| Taymouth Cheese Factory, | James W. Morse, Sr., | Birch Run, No. 2. |
| Fenmore Cheese Factory, | Mich. Milk & Food Pro'cts Co., | Bannister R. F. D. |
| Gera Creamery, | C. F. Hack, | Gear. |
| Flint River Butter & Cheese Co., | J. C. Malone, | Burt. |
| Brant Cheese Factory, | T. A. Cook, | Brant. |
| Merrill Creamery Co., | P. O'Toole, | Merrill. |
| South Branch Cheese Factory, | C. C. Brown, Mgr., | Brant. |
| Frankentrost Creamery, | M. Janson & S. Miller, | Saginaw, No. 4. |
| Kochville Skimming Station, | T. E. Webster, | Bay City. |
| Buena Vista Cheese Co., | John Leidlein, Mgr., | Saginaw, No. 4. |

SANILAC COUNTY.

| | | |
|---|---|---|
| Equity Creamery Co. (Brown City), | Gleason & Lansing, | Buffalo, N. Y. |
| Equity Creamery Co. (Marlette), | Gleason & Lansing, | Buffalo, N. Y. |
| Shabbona Creamery Co., | R. M. Riley, | Shabbona. |
| Greenleaf Creamery Co., | A. McCallum, | Cass City, No. 1. |
| Peck Creamery Co., | M. J. Griffith, | Peck. |
| Brown City Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Marlette Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Carsonville Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Roseburg Creamery Co., | James Wilson, | Yale, No. 5. |
| Downington Cheese Factory, | H. Muir, | Downington. |
| Union Creamery Co., | Frank S. Burgess, | Deckerville, No. 4. |
| Elmer Creamery Co., | W. Kerr & Son, | Sandusky. |
| Melvin Creamery, | W. J. & D. E. Laidlow, | Melvin. |
| Applegate Creamery, | W. T. Leonard & Co., | Norwood, N. Y. |
| Sandusky Creamery, | W. T. Leonard & Co., | Norwood, N. Y. |
| Mayflower Creamery Co., | Wm. Wilson, | Deckerville, No. 5. |
| Am. Farm Products Co. (Brown City), | Am. Farm Products Co., | Bad Axe. |
| Palms Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Minden City Creamery, | E. L. Moore, | Minden City. |
| Croswell Creamery, | Croswell Creamery Co., | Croswell. |
| Red Star Creamery, | Red Star Creamery Assn., | Marlette, No. 7. |
| Amadore Receiving Station, | Port Huron Creamery Co., | Port Huron. |
| Carsonville Creamery, | Frank Kinch, | Grindstone City. |

SCHOOLCRAFT COUNTY.

| | | |
|---|---|---|
| Manistique Creamery, | H. B. Goodwin, Sec. & Treas., | Manistique. |

SHIAWASSEE COUNTY.

| | | |
|---|---|---|
| Carland Cheese Company, | A. E. Shannon, | Carland. |
| Owosso Milk Depot, | E. A. Lotridge, | Owosso. |
| Am. Farm Products Co. (Owosso), | C. D. Monroe, | Owosso. |
| Henderson Creamery Co., | W. H. Keily, | Henderson. |
| Michigan Milk Depot (Owosso), | O. C. Launstein, 903 Adams St., | Owosso. |
| Bishop Creamery Co. (Morrice), | Bishop Creamery Co., | Buchanan. |
| Byron Cheese Factory, | R. A. Murray, | Byron. |
| Durand Creamery, | C. E. Van Slyke, | Durand. |
| Perry Cheese Factory, | L. Freeman Cheese Co., | Fenton. |
| Bennington Creamery, | W. R. Drury, | Bennington. |
| Burton Cheese Factory, | Mich. Milk & Food Pr'cts Co., | Elsie. |
| Milk Depot (Owosso), | C. J. Thomas, | Owosso. |
| Milk Depot (Laingsburg), | I. L. Stoney, | Laingsburg. |
| Bancroft Cheese & Butter Co., | R. A. Murray, | Byron. |
| Owosso Creamery, | C. A. Connor Ice Crm. & Cry Co. | Owosso. |

ST. CLAIR COUNTY.

| | | |
|---|---|---|
| Review Cheese Factory, | Review Cheese Co., | Marine City, No. 3. |
| Maple Grove Cheese Factory, | Simon Bable & Co., | Marine City, No. 3. |
| Germania Cheese Co., | F. J. Haug, | Marine City, No. 3. |
| Berville Creamery Co., | F. Brown, | Berville. |
| Capac Creamery, | Capac Creamery Co., | Capac. |
| Port Huron Creamery Co., | Ruff & Otter, | Port Huron. |
| St. Clair Creamery Co., | Chas. H. Otter, | St. Clair. |
| China Twp. Skimming Station, | St. Clair Creamery Co., | St. Clair. |
| Myers Skimming Station, | Chesterfield Creamery Co., | Mt. Clemens. |
| Kochs Skimming Station, | Chesterfield Creamery Co., | Mt. Clemens. |
| Yale Creamery Co., | James Wallace, | Yale. |
| Avoca Butter Co., | John Batten, | Avoca. |
| Casco Creamery, | Chas. Zentgrebe, | Lenox, No. 1. |
| Capac Cream Station, | Goodells Creamery Co., | Goodells. |
| Goodells Creamery Co., | James M. Green, | Goodells. |
| Hickey Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Kimball Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Lamb Cash Station, | Port Huron Creamery Co., | Port Huron. |
| Yale Receiving Station, | Am. Farm Products Co., | Bad Axe. |
| Adair Skimming Station, | Wm. Zentgrebe, | Richmond. |
| Yale Receiving Station, | Port Huron Creamery Co., | Port Huron. |

## ST. JOSEPH COUNTY.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| Colon Creamery Co., | D. L. Akey, | Colon. |
| Mendon Creamery Co., | D. W. Langdon, | Mendon. |
| Maple Lawn Creamery, | Vern Olney. | Mendon. |
| Constantine Creamery Co., | W. H. Barnard, | Constantine. |
| White Pigeon Creamery Co., | J. F. Young, | White Pigeon. |
| Centerville Creamery, | Floyd C. Miller, | Centerville. |
| The O. K. Creamery Co., | E. B. Watson, | Burr Oak. |

## TUSCOLA COUNTY.

| | | |
|---|---|---|
| Millington Creamery, | Sakewitz, McMillan & Bowman | Detroit. |
| Richville Creamery, | Sakewitz, McMillan & Bowman | Detroit. |
| Vassar Creamery, | Sakewitz, McMillan & Bowman | Detroit. |
| Cartwrights' Cheese & Butter Co., | J. F. Cartwright & Sons, | Mayville. |
| Thumb Creamery Co. (Indian Fields), | W. H. Betchtel, | Caro. |
| Thumb Creamery Co. (Cass City), | W. H. Betchtel, | Caro. |
| Tuscola Cheese Mfg. Co., | G. W. Dimond, | Tuscola. |
| Reese Creamery, | Henry Mungers, | Reese. |
| East Dayton Cheese Factory, | Alfred Walls, Mgr., | Caro. |
| Silverwood Cheese Factory, | A. L. Rice, | Silverwood. |
| Unionville Creamery Co., | H. G. Spring, | Unionville. |
| Arbela Cheese Co., | O. Cole, Pres., | Millington R. F. D. |
| Fostoria Cheese Factory & Creamery, | Leonard Freeman Cheese Co., | Fenton. |
| Fairgrove Creamery, | Findlay Bros., | Fairgrove. |
| Gagetown Cheese Factory, | Fred M. Warner Cheese Co., | Farmington. |

## VAN BUREN COUNTY.

| | | |
|---|---|---|
| Gobleville Creamery, | Gobleville Creamery Co., | Gobleville. |
| Bloomingdale Creamery, | Chas. Linton, | Bloomingdale. |
| Breedsville Skimming Station, | Chas. Linton, | Bloomington. |
| Berlamont Skimming Station, | Chas. Linton, | Bloomingdale. |
| Decatur Creamery Co., | Milo Youells, | Decatur. |
| Base Line Cheese Factory, | Lynn Reid, | Bloomingdale. |
| Glendale Cooperative Creamery Co., | M. J. Sherred, | Bloomingdale, No. 1. |
| Arlington Skimming Station, | Glendale Cooperative Cmry, | Bloomingdale R. F. D. |
| Lawrence Cooperative Creamery, | H. W. Chapman, | Lawrence. |
| McDonald Creamery Co., | H. R. Goss, | McDonald. |
| Almena Creamery, | C. A. Finch, | Paw Paw, No. 6. |
| Hartford Creamery, | W. T. Parks, | Benton Harbor. |

## WASHTENAW COUNTY.

| | | |
|---|---|---|
| Whittaker Skimming Station, | Towars Wayne County Cmry, | Detroit. |
| Chelsea Skimming Station, | Towars Wayne County Cmry, | Detroit. |
| Dexter Creamery, | Towars Wayne County Cmry, | Detroit. |
| Milk Depot (Ann Arbor), | Wurster Bros., 302 Detroit St., | Ann Arbor. |
| Ypsilanti Dairy Assn., (creamery) | S. A. Wiard, | Ypsilanti. |
| Stony Creek Skimming Station, | Ypsilanti Dairy Assn., | Ypsilanti. |
| Saline Creamery Co., | E. A. Hauser, | Saline. |
| Salem Station & Milk Depot, | Detroit Creamery Co., | Detroit. |
| Riverside Cheese Factory (Sharon), | Burt L. Gillhouse, | Manchester. |
| Milk Depot (Ypsilanti), | Frank S. Begole, | Ypsilanti. |
| Dixboro Dairy Assn., | Robert Shankland, | Ann Arbor, No. 8. |
| Worden Cooperation Creamery Assn., | A. C. Curtis, | Plymouth, No. 1. |
| Lyndon Cheese Co., | Samuel Boyce, | Stockbridge. |
| Colonial Creamery, | Chas. L. Foster, | Ypsilanti. |
| Herman Bloess City Dairy, | Herman Bloess, | Ann Arbor. |
| Willis Creamery, | F. J. Fletcher & Co., | Willis. |
| Milan Skimming Station, | W. F. Allen, | Milan. |
| Milk Depot (Ypsilanti), | Fred Slayton, 126 Summit St., | Ypsilanti. |
| Manchester Creamery, | H. W. Weber, | Manchester. |

## WAYNE COUNTY.

| | | |
|---|---|---|
| Hickory Grove Milk Depot, | Wm. R. Semann, 1769 St. Aubin, | Detroit. |
| Philip Gabel Milk Depot, | Philip Gabel, 814 Oakland Ave., | Detroit. |
| Roy & Clinton Milk Depot, | Roy & Clinton, 147 Pierce St., | Detroit. |
| Colonial Milk Depot, | Chas. Smith, 578 Jos. Campau Ave., | Detroit. |
| Philip Plovie Milk Depot, | Philip Plovie, 13 Felch St., | Detroit. |
| August Gelinski Milk Depot. | Aug. Gelinski, 728 Grandy Ave., | Detroit. |
| J. H. Wilson & Sons Milk Depot, | J. H. Wilson & Sons, 922 Fort St., | Detroit. |
| J. W. Raleigh Milk Depot, | J. W. Raleigh, 314 Fort St., | W. Detroit. |
| Redford Milk Depot, No. 1, | Towars Wayne County Cmry, | Detroit. |
| Redford Milk Depot, No. 2, | Towars Wayne County Cmry, | Detroit. |
| Romulus Milk Producers Assn., | Romulus Milk Prod'rs Assn., | Romulus. |
| Denton Milk Depot, | Towars Wayne County Cmry, | Detroit. |
| Milk Depot (Wyandotte), | P. R. Johnson Milk Co., | Wyandotte. |
| Belle Isle Creamery, | Henry Laithem, 282 Sheridan Ave., | Detroit. |

WAYNE COUNTY—Continued.

| Name. | Owner or Manager. | Postoffice. |
|---|---|---|
| J. R. Smith Milk Depot, | J. R. Smith, 232 Milwaukee Ave., | W. Detroit. |
| A. Krausman Milk Depot, | A. Krausman, 916 St. Aubin, | Detroit. |
| A. Lazarowicz Milk Depot, | Anthony Lazarowicz, 639 Frederick, | Detroit. |
| Cherry Hill Skimming Station, | Ypsilanti Dairy Assn., | Ypsilanti. |
| Gilt Edge Cheese Factory, | Frank E. Bradley, | Farmington. |
| Frank R. Smith Milk Depot, | Frank R. Smith 83 Melrose Ave. | Detroit. |
| C. L. Bossardet Milk Depot, | C. L. Bossardet, 1227 Wabash, | Detroit. |
| Detroit Creamery, | Detroit Creamery Co., | Detroit. |
| Swegles Milk Depot, | Detroit Creamery Co., | Detroit. |
| Hand Milk Depot, | Detroit Creamery Co., | Detroit. |
| Holland Milk Depot, | Detroit Creamery Co., | Detroit. |
| Dearborn Milk Depot, | Detroit Creamery Co., | Detroit. |
| Perrinsville Milk Depot, | Detroit Creamery Co., | Detroit. |
| Inkster Milk Depot, | Detroit Creamery Co., | Detroit. |
| Preston Milk Depot, | Detroit Creamery Co., | Detroit. |
| Stark Milk Depot, | Detroit Creamery Co., | Detroit. |
| Flat Rock Milk Depot, | Detroit Creamery Co., | Detroit. |
| Sheldon Skim. Sta. & Milk Depot, | Detroit Creamery Co., | Detroit. |
| Elm Milk Depot, | Detroit Creamery Co., | Detroit. |
| F. A. Gillam Milk Depot, | F.A. Gillam, 63 Melrose Ave., | Detroit. |
| Belleville Creamery, | Van Buren Creamery Co., | Belleville. |
| West Sumpter Creamery, | West Sumpter Creamery Co., | Belleville, No. 4. |
| Wayne Creamery, | Wayne Creamery Co., | Wayne. |
| Plymouth Creamery, | Plymouth Creamery Co, | Plymouth. |
| Michigan Milk Depot (Detroit), | F. L. Frank, 279 Philadelphia Ave., | Detroit. |
| Evergreen Road Milk Sta.(Redford Tp.), | F. D. Stricker, 55-57 Russell St., | Detroit. |
| Robert Dickinson Cmry (Hamtramck), | Robert Dickinson, | Hamtramack. |
| Rosebud Creamery Co., | C. Philipski, Grand Ave., | Detroit. |
| Detroit Dairy Co., Milk Depot., | D. B. Wilkie, 99 Elm St., | Detroit. |
| Wm. L. Watson Milk Depot, | Wm. L. Watson, 223 Moran St., | Detroit. |
| Wm. Dickinson, Jr., Milk Depot, | Wm. Dickinson, Jr., 1467 Joseph Campau Ave., | Detroit. |
| Troy Milk Co., | Troy Milk Co., 75 Baltimore Ave. East, | Detroit. |
| H. Gordon, Milk Depot, | H. Gordon, 264 Winder St., | Detroit. |
| Tony Schlaff Milk Depot, | Tony Schlaff, | Dearborn. |
| Frank G. Kruger Milk Depot, | Frank G. Kruger, 358 Antietam St., | Detroit. |
| Otto Ludeman Milk Depot, | Otto Ludeman, 642 Goth Ave., | Detroit. |
| Gerrards Milk Depot, | John Schlaff, 277 Tillman Ave., | Detroit. |
| Warren Milk Depot, | John Schlaff, 277 Tillman Ave., | Detroit. |
| Palmer Milk Depot, | John Schlaff, 277 Tillman Ave., | Detroit. |
| Edson James Milk Depot, | Edson James, 771 Orleans St., | Detroit. |
| Cottage Grove Creamery, | Cottage Grove Creamery Co., 104 Beals Ave., | Detroit. |
| Wm. F. Franz Depot, | Wm. F. Franz, 69 Berlin St., | Detroit. |
| Baldwin Creamery Milk Depot, | Wm. J. Mutton, 886 Baldwin Ave., | Detroit. |
| Robert Meldrum Milk Depot, | Robert Meldrum, 536 Orleans St., | Detroit. |
| Joseph Berels Milk Depot, | Joseph Berels, 868 Jos. Campau Ave., | Detroit. |
| Wm. Beckman Milk Depot, | Wm. Beckman, 200 Sheridan Ave., | Detroit. |
| Belvidere Milk Depot, | Frank G. Plasko, 493 Belvidere Ave., | Detroit. |
| E. M. Starkweather Milk Depot, | E. M. Starkweather, | Northville. |
| Plymouth Cheese Factory, | Fred. M. Warner Cheese Co., | Farmington. |
| New Boston Creamery, | J. P. Ryder, | Toledo, Ohio. |
| Waltz Skimming Station, | J. W. Simcock, | New Boston. |
| Valley Creamery, | J. W. Simcock, | New Boston. |
| Milk Depot 1014 Wabash Ave., | E. F. Roy & Co., 1014 Wabash Ave., | Detroit. |

WEXFORD COUNTY.

| | | |
|---|---|---|
| Manton Creamery, | Rudell Creamery, | Grand Rapids. |

# LAWS AND DECISIONS.

# LAWS OF MICHIGAN

RELATIVE TO

# INSPECTION AND ADULTERATION OF FOODS AND DRUGS.

## POWERS AND DUTIES OF THE COMMISSIONER.

AN ACT to provide for the appointment of a Dairy and Food Commissioner, and to define his powers and duties and fix his compensation.

(Act No. 211, Public Acts, 1893.)

*The People of the State of Michigan enact:*

1. (C. L., 4973) Section 1. That within thirty days after this act shall take effect, the Governor by and with the consent of the Senate, shall appoint a suitable person to be Dairy and Food Commissioner, which office is hereby created, and which commissioner so appointed shall hold his office until the first day of January, one thousand eight hundred and ninety-five, and until his successor is appointed and qualified. At the next regular session of the legislature and every two years thereafter, the Governor, by and with the advice and consent of the Senate, shall appoint a Dairy and Food Commissioner, who shall hold his office for the term of two years from the first day of January in the year of his appointment and until his successor is appointed and qualified.

2. (C. L., 4974) Sec. 2. The Governor shall have power to remove such commissioner at any time in his discretion; but the reasons for such removal shall be laid before the Senate at the next regular or special session of the legislature thereafter, and in case of a vacancy in the office of commissioner from any cause, the Governor may appoint another person to fill the same.

3. (C. L., 4975) Sec 3. Before entering upon the duties of his office, the person so appointed shall make, subscribe, and file in the office of the Secretary of State, an oath of office in the form prescribed by section one of article eighteen of the constitution of this State, and shall enter into bonds with the people of the State of Michigan in the sum of ten thousand dollars, with sureties to be approved by the Governor, conditioned for the faithful performance of his duties.

4. (C. L., 4976) Sec. 4. Said commissioner shall receive an annual salary of two thousand dollars. The said commissioner is hereby authorized and empowered, by and with the advice and consent of the Governor, to appoint a deputy commissioner. The salary of the deputy commissioner shall be fifteen hundred dollars per annum. The said com-

missioner may also appoint eight regular inspectors, who shall receive an annual salary not to exceed one thousand dollars per year, and such other special inspectors as the proper performance of the duties of the office may require, which special inspectors shall be paid not to exceed three dollars per day for time actually employed: Provided, That the amount paid such special inspectors any one fiscal year shall not exceed six thousand dollars. The persons so appointed shall have power to administer oaths in all matters relative to the dairy and food laws and shall take and subscribe the constitutional oath of office and file the same in the office of the Secretary of State; and they shall hold office during the pleasure of the commissioner. The inspectors shall have the same right of access to the places to be inspected as the said commissioner or his deputy. The commissioner shall appoint such clerks as he may deem necessary for the transaction of the business of his office. The salaries and expenses authorized by this section shall be for the unexpired part of the fiscal year ending June thirty, nineteen hundred five, and each fiscal year thereafter. Said salaries are to be paid monthly on the warrant of the Auditor General. The actual and necessary expenses of the commissioner, deputy and inspectors, in the performance of their official duties, shall be audited by the State Board of Auditors and paid upon the warrant of the Auditor General. Such compensation and expenses shall be certified, audited and paid in the same manner as salaries and expenses paid similar officers. The deputy commissioner and inspectors shall enter into bonds with the people of the State of Michigan in the sum of five thousand dollars each, with sureties to be approved by the commissioner, conditioned for the faithful performance of their respective duties. The Board of State Auditors shall provide office room, and the necessary furniture and fixtures and the necessary stationery, supplies and printing for the conducting of the business of said commissioner, on his application to said board therefor. Said office shall be and remain in the city of Lansing.

[Am. by Act No. 245, P. A. 1895. Am. by Act No. 154, P. A. 1897. Am. by Act No. 186, P. A. 1901. Am. by Act No. 230, P. A. 1903. Am. by Act No. 12, P. A. 1905.]

5. (C. L., 4977) Sec. 5. The commissioner, by and with the consent of the Governor, shall appoint a suitable and competent person as State Analyst, who shall be a practical analytical chemist. The commissioner, in like manner, may appoint an assistant chemist. Before entering upon the duties of their offices, the analyst and assistant chemist shall take, subscribe and file in the office of the Secretary of State the constitutional oath of office. Their term of office shall continue during the pleasure of the commissioner. The Board of State Auditors shall provide a room in connection with the Dairy and Food Commissioner for the laboratory of the State Analyst and his assistant, and the necessary furniture and fixtures therefor. In case of the absence or inability of the State Analyst or his assistant to perform his duty, the commissioner may appoint some competent person to perform the same temporarily, which person shall take, subscribe and file the constitutional oath of office. The salaries and expenses authorized by this section shall be for the unexpired part of the fiscal year ending June

thirty, nineteen hundred five, and each fiscal year thereafter, said salaries to be payable monthly on the warrant of the Auditor General. The salary of the chemist shall be not to exceed two thousand dollars; the salary of the assistant chemist shall be not to exceed twelve hundred dollars. The actual and necessary expenses of the chemist and the assistant chemist, in the performance of their official duties, shall be audited by the Board of State Auditors, and paid upon the warrant of the Auditor General. Such an amount as is found to be necessary in the proper performance of the work of the analyst may be expended for chemical supplies. Such compensations, expenses and supplies shall be certified, audited and paid in the same manner as the salaries, expenses and supplies of similar officers.

[Am. by Act No. 245, P. A. 1895. Am. by Act No. 154, P. A. 1897. Am. by Act No. 186, P. A. 1901. Am. by Act No. 230, P. A. 1903. Am. by Act No. 12, P. A. 1905.]

6. (C. L., 4978) Sec. 6. It shall be the duty of the Dairy and Food Commissioner to carefully inquire into the dairy and food and drink products and the several articles which are foods or drinks, or the necessary constitutents of foods or drinks, which are manufactured or sold or exposed or offered for sale in this State, and he may, in a lawful manner, procure samples of the same and direct the State Analyst to make due and careful examination of the same, and report to the commissioner the result of the analysis of all and any of such food and drink products or dairy products as are adulterated, impure or unwholesome in contravention of the laws of this State; and it shall be the duty of the commissioner to make a complaint against the manufacturer or vendor thereof in the proper county and furnish all evidence thereof, to obtain a conviction of the offense charged. The Dairy and Food Commissioner, or his deputy, or any person appointed by him for that purpose may make complaint and cause proceedings to be commenced against any person for the enforcement of any of the laws relative to adulterated, impure or unwholesome food or drink, and in such case he shall not be obliged to furnish security for costs and shall have power, in the performance of his duties, to enter into any creamery, factory, store, salesroom, drug store, or laboratory, or place where he has reason to believe food or drink is made, stored, sold or offered for sale and open any cask, tub, jar, bottle or package containing, or supposed to contain, any article of food or drink and examine or cause to be examined the contents thereof, and take therefrom samples for analysis. The person making such inspection shall take such sample of such article or product in the presence of at least one witness, and he shall, in the presence of said witness, mark or seal such sample and shall tender at the time of taking to the manufacturer or vendor of such product, or to the person having the custody of the same, the value thereof, and a, statement in writing for the taking of such sample. Whenever it is determined by the Dairy and Food Commissioner, his deputy or inspectors, that filthy or unsanitary conditions exist or are permitted to exist in the operation of any bakery, confectionary, or ice cream plant, or in any place where any food or drink products are manufactured, stored, deposited or sold for any purpose whatever, the proprietor or proprietors,

owner or owners, of such bakery, confectionary or ice cream plant, or any person or persons, owning or operating any plant where any food or drink products are manufactured, stored, deposited or sold, shall be first notified and warned by the commissioner, his deputy or inspectors to place such bakery, confectionary or ice cream plant, or any place where any food or drink products are manufactured, stored, deposited or sold in a sanitary condition within a reasonable length of time; and any person or persons owning and operating any bakery, confectionary or ice cream plant or any place where any food or drink products are manufactured, stored, deposited or sold, failing to obey such notice and warning, shall be guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine of not less than twenty-five dollars nor more than three hundred dollars and costs of prosecution, or imprisonment in the county jail not to exceed ninety days, or until such fine and costs are paid, or both fine and imprisonment at the discretion of the court.

[Am. by Act No. 245, P. A. 1895. Am. by Act No. 154, P. A. 1897. Am. by Act No. 268, P. A. 1899. Am. by Act No. 12, P. A. 1905.]

7. (C. L., 4979) Sec. 7. The commissioner, his deputy or any person by said commissioner duly appointed for that purpose, is authorized at all times to seize and take possession of any and all food and dairy products, substitutes therefor, or imitation thereof kept for sale, exposed for sale or held in possession or under the control of any person which in the opinion of the said commissioner, or his deputy or such person by him duly appointed, shall be contrary to the provisions of this act or other laws which now exist or which may be hereafter enacted.

First, The person so making such seizure as aforesaid, shall take from such goods as seized a sample for the purpose of analysis and shall cause the remainder thereof to be boxed and sealed and shall leave the same in the possession of the person from whom they were seized, subject to such disposition as shall hereafter be made thereof according to the provisions of this act.

Second, The person so making such seizure, shall forward the sample so taken to the State Analyst for analysis, who shall make an analysis of the same and shall certify the results of such analysis, which certificate shall be prima facie evidence of the fact or facts therein certified to in any court where the same may be offered in evidence.

Third, If upon such analysis it shall appear that said food or dairy products are adulterated, substitutes or imitations within the meaning of this act, said commissioner, or his deputy or any person by him duly authorized may make complaint before any justice of the peace or police justice having jurisdiction in the city, village or township where such goods were seized, and thereupon said justice of the peace shall issue his summons to the person from whom said goods were seized, directing him to appear not less than six nor more than twelve days from the date of the issuing of said summons and show cause why said goods should not be condemned and disposed of. If the said person from whom said goods were seized cannot be found said summons shall be served upon the person then in possession of the goods. The said

summons shall be served at least six days before the time of appearance mentioned therein. If the person from whom said goods were seized cannot be found, and no one can be found in possession of said goods, and the defendants shall not appear on the return day, then said justice of the peace shall proceed in said cause in the same manner provided by law where a writ of attachment is returned not personally served upon any of the defendants and none of the defendants shall appear upon the return day.

Fourth, Unless cause to the contrary thereof is shown, or if said goods shall be found upon trial to be in violation of any of the provisions of this act or other laws which now exist or which may be hereafter enacted, it shall be the duty of said justice of the peace or police justice to render judgment that said seized property be forfeited to the State of Michigan, and that the said goods be destroyed or sold by the said commissioner for any purpose other than to be used for food. The mode of procedure before said justice shall be the same, as near as may be as in civil proceedings before justices of the peace. Either parties may appeal to the circuit court as appeals are taken from justices' courts, but it shall not be necessary for the people to give any appeal bond.

Fifth, The proceeds arising from any such sale shall be paid into the State treasury and credited to the general fund: Provided, That if the owner or party claiming the property or goods so declared forfeited can produce and prove a written guaranty of purity, signed by the wholesaler, jobber, manufacturer or other party from whom said articles were purchased, then the proceeds of the sale of such articles, over and above the costs of seizure, forfeiture, and sale, shall be paid over to such owner or claimant to reimburse him, to the extent of such surplus, for his actual loss resulting from such seizure and forfeiture, as shown by the invoice.

Sixth, It shall be the duty of each prosecuting attorney when called upon by said commissioners or by any person by him authorized as aforesaid, to render any legal assistance in his power in proceedings under the provisions of this act, or any subsequent act relative to the adulteration of food, for the sale of impure or unwholesome food or food products.

[Am. by Act No. 245, P. A. 1895. Am. by Act No. 268, P. A. 1899. Am. by Act No. 230, P. A. 1903.]

8. (C. L., 4980) Sec. 8. It shall be unlawful for the State Analyst, while he holds his office to furnish to any individual, firm or corporation, any certificate as to the purity or excellence of any article manufactured or sold by them to be used as food or in the preparation of food.

9. (C. L., 4981) Sec. 9. The commissioner shall make an annual report to the Governor on or before the first day of July in each year, and which shall be printed and published on or before the first day of September next thereafter, which report shall cover the doings of his office for the preceding fiscal year, which shall show, among other things, the number of manufactories and other places inspected and by whom, the number of specimens of food articles analyzed, and the

State Analyst's report upon each one; the number of complaints entered against persons for violation of the laws relative to the adulteration of food, the number of convictions had, and the amount of fines imposed therefor, together with such recommendations relative to the statutes in force as his experience may justify. The commissioner shall also prepare, print and distribute to all the papers of the State, and to such persons as may be interested or may apply therefor, a monthly bulletin, in suitable paper covers, containing results of inspections, the results of analyses made by the State Analyst, with popular explanation of the same, and such other information as may come to him in his official capacity relating to the adulteration of food and drink products and of dairy products, so far as he may deem the same of benefit and advantage to the public; also a brief summary of all the work done during the month by the commissioner and his assistants in the enforcement of the laws of the State, but not more than ten thousand copies of each such monthly bulletin shall be printed.

[Am. by Act No. 245, P. A. 1895. Am. by Act No. 154, P. A. 1897. Am. by Act No. 268, P. A. 1899.]

10. (C. L., 4982) Sec. 10. Any person who shall wilfully hinder or obstruct the Dairy and Food Commissioner, or his deputy or other person or inspector by him duly authorized, in the exercise of the powers conferred upon him by this act, shall be deemed guilty of a misdemeanor, and on conviction shall be punished by a fine of not less than ten dollars nor more than one hundred dollars, or by imprisonment in the county jail for not less than ten days nor more than ninety days, or both such fine and imprisonment in the discretion of the court.

[Added by Act No. 245, P. A. 1895.]

11. (C. L., 4983) Sec. 11. The sum of thirty-five thousand dollars is hereby appropriated for the fiscal year ending June thirty, nineteen hundred six, and for each fiscal year thereafter, there is hereby appropriated the sum of thirty-five thousand dollars. Out of the amounts appropriated by this act shall be paid all salaries and expenses and chemical supplies provided for therein: Provided, That all expenses for stationery and printing shall be audited and paid in the same manner as other State printing and stationery.

[Added by Act No. 245, P. A. 1895. Am. by Act No. 154, P. A. 1897. Am. by Act No. 268, P. A. 1899. Am. by Act No. 186, P. A. 1901. Am. by Act No. 12, P. A. 1905.]

12. (C. L., 4984) Sec. 12. The Auditor General is hereby directed to annually add to and incorporate into the State tax, to be levied each year, the sum of thirty-five thousand dollars, which, when collected, shall be credited to the general fund to reimburse the same for the money appropriated by this act.

[Added by Act No. 245, P. A. 1895. Am. by Act No. 154, P. A. 1897. Am. by Act No. 268, P. A. 1899. Am. by Act No. 186, P. A. 1901. Am. by Act No. 230, P. A. 1903. Am. by Act No. 12, P. A. 1905.]

13. Sec. 13. It shall also be the duty of the Dairy and Food Commissioner to foster and encourage the dairy industry of the State, and for that purpose, he shall investigate the general conditions of the creameries, cheese factories, condensed milk factories, skimming stations, milk stations and farm dairies in this State, with full power to enter upon any premises for such investigation, with the object in view of improving the quality and creating and maintaining uniformity of the dairy products of the State; and should it become necessary, in the judgment of the Dairy and Food Commissioner, he may cause instruction to be given in any creamery, cheese factory, condensed milk factory, skimming station, milk station, or farm dairy, or in any locality in this State, and in order to secure the proper feeding and care of cows, or the practical operation of any plant producing dairy products, and in order to secure such a uniform and standard quality of dairy products in this State, he shall furnish a sufficient number of competent inspectors, the appointment of whom is provided for in section four of this act, and they shall be duly qualified to act as such inspectors.

[Added by Act No. 12, P. A. 1905.]

14. Sec. 14. Whenever it is determined by the Dairy and Food Commissioner, his deputy or inspectors, that any person is using, selling or furnishing to any skimming station, creamery, cheese factory, condensed milk factory, milk depot, farm dairy, milk dealer, the retail trade or to any consumer of milk, any impure or unwholesome milk or cream, which impurity or unwholesomeness is caused by the unsanitary or filthy condition of the premises where cows are kept, or by the unsanitary or filthy care or handling of the cows, or from the use of unclean utensils or from unwholesome food, or from any other cause, the person so using, selling or furnishing to any skimming station, creamery, cheese factory, condensed milk factory, milk depot, farm dairy, milk dealer, the retail trade, or to any consumer of milk, any such milk or cream, shall first be notified and warned by the commissioner, his deputy or inspectors not to use, sell, or furnish such milk or cream to such skimming station, creamery, cheese factory, condensed milk factory, milk depot, farm dairy, milk dealer, the retail trade, or to any consumer of milk, and any person failing to obey such notice and warning, and continuing to use, sell or furnish to any skimming station, creamery, cheese factory, condensed milk factory, farm dairy, milk dealer or to the retail trade such impure or unwholesome milk or cream, shall be guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine not less than ten dollars, nor more than fifty dollars, and costs of prosecution, or imprisonment in the county jail, not to exceed ninety days, or until such fine and costs are paid, or both fine and imprisonment at the discretion of the court.

[Added by Act No. 12, P. A. 1905.]

15. Sec. 15. Whenever it is determined by the Dairy and Food Commissioner, his deputy or inspectors, that unsanitary conditions exist or are permitted to exist in the operation of any skimming station, creamery, cheese factory, condensed milk factory, milk depot, or farm dairy,

the proprietor or proprietors, or manager of said skimming station, creamery, cheese factory, condensed milk factory or farm dairy, shall be first notified and warned by the commissioner, his deputy or inspectors to place such skimming station, creamery, cheese factory, condensed milk factory, milk depot or farm dairy in a sanitary condition, within a reasonable length of time; and any person or persons owning or operating such skimming station, creamery, cheese factory, condensed milk factory, milk depot, or farm dairy, failing to obey such notice and warning, shall be guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not less than twenty-five dollars, nor more than three hundred dollars, and costs of prosecution, or imprisonment in the county jail, not to exceed ninety days or until such fine and costs are paid, or both fine and imprisonment at the discretion of the court.

[Added by Act No. 12, P. A. 1905.]

16. Sec. 16. It shall be the duty of the proprietor or proprietors of every skimming station, creamery, cheese factory, condensed milk factory or milk depot, in the State where milk or cream is received by purchase or otherwise from three or more persons, to register with the Dairy and Food Commissioner on or before April first of each year, upon blanks furnished by said official, the location of such skimming station, creamery, cheese factory, condensed milk factory or milk depot, and the name of its owner or owners and manager. And it shall be the duty of the proprietor or proprietors of every skimming station, creamery, cheese factory, condensed milk factory or milk depot in this State, where milk or cream is received by purchase or otherwise from three or more persons, to file a report with the Dairy and Food Commissioner, said report to be made on or before April first of each year, upon blanks furnished by said official, and to show the amount of milk or cream received by said skimming station, creamery, cheese factory, condensed milk factory or milk depot during the year ending December thirty-first preceding; and said report shall show the amount of butter, cheese or condensed milk manufactured during the year, together with a list of the names and postoffice addresses of the patrons of said skimming station, creamery, cheese factory, condensed milk factory or milk depot. Every skimming station, creamery, cheese factory, condensed milk factory or milk depot, so registering and so reporting, shall pay to the office of the State Dairy and Food Commissioner an annual registration fee of five dollars, to be paid at the time of such registration. The money so collected by the Dairy and Food Commissioner shall be paid into the State treasury and be used to help defray the expenses of the office of the Dairy and Food Commissioner, in addition to the annual appropriation therefor.

[Added by Act No. 12, P. A. 1905.]

17. Sec. 17. Any person, or persons or corporation who shall sell milk or cream from a wagon or other conveyance, depot or store, or who shall sell or deliver milk or cream to a hotel, restaurant, boarding house or any public place, shall be considered a milk dealer; and every

milk dealer who shall sell milk or cream from a wagon or other conveyance, depot or store, or who shall sell, or deliver milk or cream to a hotel, restaurant, boarding house or any public place in any city, town or village of this State, must first obtain a license from the Dairy and Food Commissioner to sell such milk or cream. A license shall be required for each wagon or other conveyance, depot or store. Each dealer shall pay to the Dairy and Food Commissioner a license fee of one dollar for each license so granted, which license must be obtained on or before the first day of July of each year. The moneys received by the Dairy and Food Commissioner, in payment of such licenses, shall be paid into the State treasury and be used to help defray the expenses of the office of the Dairy and Food Commissioner in addition to the annual appropriation. All licenses shall be used only in the name of the owner of the wagon, depot or store, and shall, for the purpose of this act, be prima facie evidence of ownership. No license shall be sold, assigned, or transferred. Each license shall record the name, residence, place of business, number of wagons, depots or stores used (where more than one is employed) and the number of the license. Whoever violates any of the provisions of this section, in so far as relates to registration and the securing of licenses, shall be deemed guilty of a misdemeanor, and for each and every offense shall be punished by a fine of not less than five dollars, nor more than twenty-five dollars and the costs of prosecution, or by imprisonment in the county jail for not more than thirty days, or both.

[Added by Act No. 12, P. A. 1905.]

18. Sec. 18. Any manufacturer, company, person or persons who shall sell, offer or expose for sale or for distribution, in this State, any concentrated commercial feeding stuff used for feeding live stock, shall furnish with each car, or other amounts shipped in bulk, and shall affix to every package of such feeding stuff, in a conspicuous place, on the outside thereof, a plainly printed statement, clearly and truly certifying the number of net pounds in the car or package sold or offered for sale, the name or trade-mark under which the article is sold, the name of the manufacturer or shipper, the place of manufacture, the place of business, and a chemical analysis, stating the percentages it contains of crude protein, crude fibre, nitrogen-free extract and ether extract, all constituents to be determined by the methods adopted by the association of official agricultural chemists. Whenever any feeding stuff is sold at retail, in bulk or in packages belonging to the purchaser, the agent or dealer shall furnish to him a certified copy of the chemical analysis named in this section.

(a) The term concentrated commercial feeding stuffs as used in this act shall include linseed meal, cotton seed meal, pea meals, cocoanut meals, gluten meals, oil meals of all kinds, gluten feeds, maize feeds, starch feeds, mixed sugar feeds, hominy feeds, rice meals, oat feeds, corn and oat feeds, meat meals, dried blood, clover meals, mixed feeds of all kinds, slaughter house waste products; also all condimental stock foods, patented and proprietary stock foods, claimed to possess nutritive properties and all other materials intended for feeding to domestic animals: Provided, That such feeding stuffs, as defined above, shall not

include hays, straws, fodders, ensilage, the whole seeds nor the unmixed meals made directly from the entire grains of wheat, rye, barley, oats, flaxseed, maize, buckwheat, wet brewers' grains, malt sprouts, wet or dried beet pulp when unmixed with other materials. Neither shall it include wheat, rye and buckwheat brans or middlings not mixed with other substances, but sold separately as distinct articles of commerce, nor pure grains ground together.

(b) Before any manufacturer, company, person or persons shall sell, offer or expose for sale in this State any concentrated commercial feeding stuff, he or they shall, for each and every feeding stuff bearing a distinguishing name or trade-mark, file annually, with the Dairy and Food Commissioner a certified copy of the chemical analysis and certificate referred to in this section, and shall deposit with said Dairy and Food Commissioner a sealed glass jar, or bottle, containing at least one pound of the feeding stuff to be sold or offered for sale, together with an affidavit that it is a fair sample of the article thus to be sold or offered for sale. He or they shall also pay annually into the State treasury a license fee of twenty dollars for each and every brand of feeding stuff he offers or exposes for sale in this State. Said fee is to be paid on or before April first of each year: Provided, That whenever the manufacturer or importer shall have paid this license fee, his agents shall not be required to do so. Whenever any manufacturer, importer, agent or seller of any commercial feeding stuff desires at any time to sell such material and has not paid the license fee therefor, he shall pay the license fee prescribed in this section, before making any such sale. The money collected under the provisions of this act shall be paid into the State treasury and be used to help defray the expenses of the office of the Dairy and Food Commissioner, in addition to the regular appropriation therefor.

(c) Whenever the manufacturer, importer, agent or seller of any commercial feeding stuff shall have complied with the requirements of this section, the Dairy and Food Commissioner shall issue or cause to be issued, a license, permitting the sale of said feeding stuff, which license shall terminate on April first following the date of issue.

(d) All such analyses of commercial feeding stuffs required by this act, shall be made under the direction of the Dairy and Food Commissioner, and shall be paid for out of the funds arising from the license fees provided for in this section.

(e) The Dairy and Food Commissioner shall publish, or cause to be published in bulletin form, at least annually a correct statement of all analyses made, together with any incidental information concerning same which he may deem proper.

(f) Any manufacturer, importer, company, agent, person or persons, who shall sell, offer or expose for sale, without first complying with the provisions of this act, any commercial feeding stuff, or shall attach or cause to be attached to any car, package or other quantity of said feeding stuff, an analysis stating that it contains a larger percentage of any one or more of the constituents named in this section than it really does contain shall, upon conviction thereof, be fined not less than one hundred dollars for the first offense, and not less than three hundred dollars for every subsequent offense, and the offender shall also

be liable for damages sustained by the purchaser of such feeding stuff on account of such misrepresentation.

(g) The Dairy and Food Commissioner, by any duly authorized agent, is hereby authorized to select from any package of commercial or other feeding stuff exposed or offered for sale in this State, a quantity not exceeding two pounds for a sample, such sample to be used for the purposes of an official analysis and for comparison with the certificate filed with the Dairy and Food Commissioner, and with the certificate affixed to the package on sale.

[Added by Act No. 12, P. A. 1905.]

19. Sec. 19. The published annual report of the Dairy and Food Commissioner which shall be made to the Governor, shall include a complete accounting of all moneys received by the department from every source, and the amount expended by the department.

[Added by Act No. 12, P. A. 1905.]

20. Sec. 20. All acts and parts of acts inconsistent with this act so far as they are inconsistent are hereby repealed.

This act is ordered to take immediate effect.

[Added by Act No. 12, P. A. 1905.]

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AN ACT in relation to the powers and duties of the Dairy and Food Commissioner of the State of Michigan.

(Act No. 167, Public Acts, 1899.)

*The People of the State of Michigan enact:*

21. Section 1. That any person who shall obstruct the Dairy and Food Commissioner, or his deputy, or any of his duly appointed inspectors, by refusing to allow him entrance to any place where he is authorized to enter in the discharge of his official duty, or refuses to deliver to him a sufficient sample for the analysis of any article of food or drink sold, offered or exposed for sale, or in his possession for the purpose of sale, wherever the same may be found, when the same is requested and when the value thereof is tendered shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than twenty-five dollars or more than one hundred dollars and the costs of prosecution, or by imprisonment in the county jail not less than ten days or more than ninety days, or by both such fine and imprisonment in the discretion of the court, for each and every offense.

This act is ordered to take immediate effect.

AN ACT for the prevention and suppression of foul brood among bees in the State of Michigan, and the inspection thereof, and to make an appropriation therefor, and to repeal act number one hundred forty-one of the public acts of eighteen hundred eighty-one, being sections fifty-six hundred sixty-three, fifty-six hundred sixty-four, fifty-six hundred sixty-five, fifty-six hundred sixty-six, fifty-six hundred sixty-seven, fifty-six hundred sixty-eight, fifty-six hundred sixty-nine and fifty-six hundred seventy of the compiled laws of eighteen hundred ninety-seven.

(Act No. 66, Public Acts, 1901.)

*The People of the State of Michigan enact:*

22. Section 1. The Dairy and Food Commissioner upon receipt of a certified copy of the record of the Michigan State Beekeepers' Association, by the secretary of said association, showing that a majority of the members of said association recommended the appointment of an inspector of apiaries, shall appoint a State inspector of apiaries. Said inspector shall be responsible to the Dairy and Food Commissioner and shall comply with such rules and regulations as the Dairy and Food Commissioner shall from time to time prescribe for the carrying out of the work of said State inspector.

23. Sec. 2. The Dairy and Food Commissioner shall, when notified in writing by the owner of an apiary or by three disinterested tax payers in the vicinity of the apiary, cause the inspector to examine such apiaries as are reported and all others in the same locality not reported, and ascertain whether or not the disease known as foul brood or other contagious disease exists in such apiaries, and if satisfied of the existence of foul brood, he shall give the owner or caretaker of the diseased apiaries full instructions how to treat said case as in the inspector's judgment seems best.

24. Sec. 3. The inspector who shall be the sole judge may visit all diseased apiaries a second time and if need be burn all colonies of bees and combs that may be found not cured of foul brood or other contagious diseases.

25. Sec. 4. If the owner of a diseased apiary, honey or appliances shall knowingly or wilfully sell, barter or give away any bees, honey or appliances, or expose other bees to the danger of said disease or refuse to allow said inspector to inspect such apiary, honey or appliances, said owner shall on conviction before a justice of the peace, be liable to a fine of not less than fifty dollars nor more than one hundred dollars, or not less than one month's imprisonment in the county jail, nor more than two month's imprisonment.

26. Sec. 5. In addition to such individual reports as are required under this act by the inspector of apiaries, he shall make an annual report to the Dairy and Food Commissioner, giving the number of the apiaries visited, the number of diseased apiaries found, the number of colonies treated, also the number of colonies destroyed by fire, and an itemized account of his transportation expenses with affidavit annexed thereto.

27. Sec. 6. There is hereby appropriated out of any money in the State treasury not otherwise appropriated a sum not exceeding five hundred dollars per year for the suppression of foul brood among bees in Michigan. The inspector shall receive five dollars per day and actual transportation and expenses for actual time served, which sum shall not exceed the money hereby appropriated, to be paid by the State Treasurer upon warrants drawn by the Auditor General and approved by the Dairy and Food Commissioner.

[Am. by Enrolled Act No. 87, Session Laws 1909.]

28. Sec. 7. Act number one hundred forty-one of the public acts of eighteen hundred eighty-one, being section fifty-six hundred sixty-three, fifty-six hundred sixty-four, fifty-six hundred sixty-five, fifty-six hundred sixty-six, fifty-six hundred sixty-seven, fifty-six hundred sixty-eight, fifty-six hundred sixty-nine and fifty-six hundred seventy of the compiled laws of eighteen hundred ninety-seven is hereby repealed.

This act is ordered to take immediate effect.

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## GENERAL FOOD LAW.

AN ACT to prohibit and prevent adulteration, fraud and deception in the manufacture, and sale of articles of food and drink.

(Act No. 193, Public Acts, 1895.)

*The People of the State of Michigan enact:*

29. (C. L., 5010) Section 1. That no person shall within this State manufacture for sale, have in his possession with intent to sell, offer or expose for sale, or sell, any article of food which is adulterated within the meaning of this act.

[Am. by Act No. 118, P. A. 1897.]

30. (C. L., 5011) Sec. 2. The term food, as used herein, shall include all articles used for food or drink, or intended to be eaten or drank by man, whether simple, mixed or compound.

31. (C. L., 5012) Sec. 3. An article shall be deemed to be adulterated within the meaning of this act: *First*, If any substance or substances have been mixed with it, so as to lower or depreciate or injuriously affect its quality strength or purity; *Second*, If any inferior or cheaper substance or substances have been substituted wholly or in part for it; *Third*, if any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it; *Fourth*, If it is an imitation of, or is sold under the name of another aricle; *Fifth*, If it consists wholly or in part of a diseased, decomposed, putrid, infected, tainted or rotten animal or vegetable substance or article, whether manufactured or not, or, in the case of milk, if it is the product of a

diseased animal; *Sixth*, If it is colored, coated, polished or powdered whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is; *Seventh*, If it contains any added substance or ingredient which is poisonous or injurious to health: Provided, That nothing in this act shall prevent the coloring of pure butter: And provided further, That the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food, if each and every package sold or offered for sale bear the name and address of the manufacturer and be distinctly labeled under its own distinctive name, and in a manner so as to plainly and correctly show that it is a mixture or compound, and is not in violation with definition fourth and seventh of this section.

[Am. by Act No. 118, P. A. 1897.]

32. (C. L., 5013) Sec. 4. No person, by himself or his agents or servants, shall manufacture for sale or offer or expose for sale, or sell, as butter, and the legitimate product of the dairy or creamery, any article not made exclusively of milk or cream, but into which the oil or fat of animals, or any other oils not produced from milk, enters as a component part, has been introduced to take the place of cream. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty nor more than five hundred dollars, and the costs of prosecution, or by imprisonment in the county jail, or the State House of Correction and Reformatory at Ionia for not less than ninety days nor more than two years, or by both such fine and imprisonment in the discretion of the court for each and every offense.

33. (C. L., 5014) Sec. 5. No person shall manufacture, deal in, sell, offer or expose for sale or exchange, any article or substance in the semblance of, or in imitation of cheese made exclusively of unadulterated milk or cream, or both, into which any animal, intestinal or offal fats or oils or melted butter in any condition or state or modification of the same, or oleaginous substances of any kind not produced from unadulterated milk or cream shall have been introduced. Whoever shall violate the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty nor more than five hundred dollars and the costs of prosecution, or by imprisonment in the county jail or the State House of Correction and Reformatory at Ionia for not less than ninety days nor more than two years, or by both such fine and imprisonment in the discretion of the court for each and every offense.

34. (C. L., 5015) Sec. 6. Every manufacturer of full milk cheese may put a brand upon each cheese, indicating "Full milk cheese," and no person shall use such a brand upon any cheese made from milk from which any of the cream has been taken. It shall be the duty of the proprietor of every cheese factory, creamery or butter factory in the State where milk or cream is purchased of or contributed by three or more persons, to register the location of such cheese factory, creamery or butter factory and the name of its owner or manager with the Dairy and Food Commissioner on or before the first day of October, A. D. eight-

een hundred ninety-seven, and on or before the first day of April in each year thereafter. Whoever violates any of the provisions of this section, in so far as it relates to registration, shall be deemed guilty of a misdemeanor, and for each and every offense shall be punished by a fine of not less than five dollars nor more than twenty-five dollars and the costs of prosecution, or by imprisonment in the county jail for not more than thirty days or both.

[Am. by Act No. 118, P. A. 1897.]

35. (C. L., 5016) Sec. 7. The Dairy and Food Commissioner shall procure and issue to the cheese manufactures of the State, on proper application, which application shall be made on or before the first day of October, A. D. eighteen hundred ninety-five and on or before the first day of April in each year thereafter, and under such regulation as to the custody and use thereof as he may prescribe, a uniform stensil brand, bearing a suitable device or motto and the words "Michigan full cream cheese." Every such brand shall be used on the outside of the cheese, and upon the package containing the same, and shall bear a separate number for each separate factory. The said commissioner shall keep a book in which shall be registered the name, location and number of each manufactory using the brand, and the name or names of persons at each factory authorized to use the same. No such brand shall be used on other than full cream cheese or packages containing the same. The commissioner shall receive a fee of one dollar for each registration, said fee to be paid by the party applying for the same, which amount shall be accounted for and used as a part of the fund appropriated for the enforcement of the laws of this State with which the Dairy and Food Commissioner is charged.

36. (C. L., 5017) Sec. 8. No person shall knowingly offer, sell or expose for sale, in any package, cheese which is falsely branded or labeled.

37. (C. L., 5018) Sec. 9. No person shall within this State manufacture for sale, have in his possession with intent to sell, offer or expose for sale, or sell as lard, any substance not the legitimate and exclusive product of the fat of the hog.

38. (C. L., 5019) Sec. 10. Every person who manufacturers for sale, has in his possession with intent to sell, offers or exposes for sale, or sells, any substance made in the semblance of lard, or as an imitation of lard, and which consists of any mixture or compound of animal or vegetable oils, or fats, other than hog fat, in the form of lard, shall cause the tierce, barrel, tub, pail or package containing the same to be distinctly and legibly branded or labeled "Lard substitute or compound," and every person who manufacturers for sale, has in his possession with intent to sell, offers or exposes for sale or sells, any substance made in the semblance of lard or as an imitation of lard, or as a substitute for lard, and which is designed to take the place of lard, and which consists of any mixture or compound of lard with animal or vegetable oils, or fats, shall cause the tierce, barrel, tub, pail or package containing the same to be distinctly and legibly branded or labeled either "Adulterated lard," "Lard compound," or "Lard substitute." Such brands or labels shall be in letters not less than one inch

in length and shall be followed with the name of the maker and factory, and the location of such factory.

39. (C. L., 5020) Sec. 11. Every dealer or trader who, by himself or agent, or as the servant or agent of another person, offers or exposes for sale, or sells any form of lard substitute or adulterated lard, as hereinbefore defined, shall securely affix or cause to be affixed to the package wherein the same is contained, offered for sale or sold, a label, upon the outside and face of which is distinctly and legibly printed in letters not less than one-half inch in length, the words "Lard substitute" or "Adulterated lard" or "Lard compound" or other appropriate word which shall correctly express its nature and use.

40. (C. L., 5021) Sec. 12. The having in possession of any lard substitute or adulterated lard or lard compound, as hereinbefore defined, which is not branded or labeled as hereinbefore required and directed, upon the part of any dealer or trader, or any person engaged in the public sale of such articles, shall for the purpose of the act be deemed prima facie evidence of intent to sell the same.

41. (C. L., 5022) Sec. 13. No person, firm or corporation in this State shall manufacture for sale, or sell, or offer or expose for sale, as fruit jelly or fruit butter, any jelly or imitation fruit butter or other similar compound made or composed in whole or in part of glucose, dextrine, starch or other substances, and colored in imitation of fruit jelly or fruit butter nor shall any such jelly, fruit butter or compound be manufactured or sold, or offered for sale, under any name or designation whatever, unless the same shall be composed entirely of ingredients not injurious to health, and shall not be colored in imitation of fruit jelly, and every can, pail or package of such jelly or butter sold in this State shall be distinctly and durably labeled "Imitation fruit jelly or butter," with the name of the manufacturer and the place where made. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor, and when convicted thereof shall be punished by a fine of not less than fifty nor more than five hundred dollars, or by imprisonment in the county jail or State House of Correction and Reformatory at Ionia for not less than ninety days nor more than two years, or by both such fine and imprisonment in the discretion of the court.

42. (C. L., 5023) Sec. 14. No packer or dealer in preserved or canned fruits and vegetables, or other articles of food, shall sell or offer for sale such canned articles, unless such articles shall be entirely free from substances or ingredients deleterious to health, and unless such articles bear a mark, stamp, brand or label bearing the name and address of the firm, person or corporation that packs the same. All "Soaked or bleached goods," or goods put up from products dried before canning, shall be plainly marked, branded stamped or labeled as such, with the words "Soaked or bleached goods," in letters not less than two-line pica in size, showing the name of the article and the name and address of the packer.

43. (C. L., 5024) Sec. 15. No person shall manufacture or sell, or offer for sale any manufactured or artificial coffee berry in imitation of the genuine berry. No person shall manufacture, sell or offer or expose for sale any ground or prepared coffee, which is adulterated

with chicory or other substance not injurious to health, unless each package thereof shall be distinctly labeled or marked "Coffee compound," together with the name and address of the manufacturer or compounder thereof, and has no other label of whatever name or designation. No person shall offer or expose for sale, have in his possession with intent to sell, or sell any molasses, syrup or glucose, unless the barrel, cask, keg, can or pail containing the same shall be distinctly branded or labeled with the true and appropriate name; nor shall any person offer or expose for sale, have in his possession with intent to sell, or sell any molasses or syrup mixed with glucose, unless the barrel, cask, keg or pail containing the same be distinctly branded or labeled "Glucose mixture," and the per cent in which glucose enters into its composition. Such barrel, cask, keg or pail shall be branded or labeled in a conspicuous place and such brands or labels shall be in letters of not less than one-half inch in length. Glucose and glucose mixtures shall have no other designation than herein required.

[Am. by Act No. 118, P. A. 1897.]

44. (C. L., 5025) Sec. 16. No person shall within this State manufacture, brew, distil, have or offer for sale, or sell, any spirituous or fermented or malt liquors, containing any substance or ingredient not normal or healthful, to exist in spirituous, fermented or malt liquors, or which may be deleterious or detrimental to health when such liquors are used as a beverage.

45. (C. L., 5026) Sec. 17. The taking of orders or the making of agreements or contracts, by any person, firm or corporation, or by any agent or representative thereof, for the future delivery of any of the articles, products, goods, wares or merchandise embraced within the provisions of this act, shall be deemed a sale within the meaning of this act.

46. (C. L., 5027) Sec. 18. Whoever shall falsely brand, mark, stencil or label any article or product required by this act to be branded, marked, stenciled, or labeled, or shall remove, alter, deface, mutilate, obliterate, imitate or counterfeit any brand mark, stencil or label so required, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than one hundred nor more than one thousand dollars and the costs of prosecution, or by imprisonment in the county jail or State House of Correction and Reformatory at Ionia, for not less than six months nor more than three years, or by both such fine and imprisonment in the discretion of the court for each and every offense.

47. (C. L., 5028) Sec. 19. Whoever shall do any of the acts or things prohibited, or wilfully neglect or refuse to do any of the acts or things enjoined by this act, or in any way violate any of its provisions, shall be deemed guilty of a misdemeanor, and where no specific penalty is prescribed by this act shall be punished by a fine of not less than twenty-five nor more than five hundred dollars, or by imprisonment in the county jail for a period of not more than ninety days, or by both such fine and imprisonment, in the discretion of the court.

[Am. by Act No. 117, P. A. 1899.]

48. (C. L., 5029) Sec. 20. It shall be the duty of the Dairy and Food Commissioner of the State to investigate all complaints of violations of this act, and take all steps necessary to its enforcement. It shall be the duty of all prosecuting officers of this State to prosecute to completion all suits brought under the provisions of this act upon the complaint of the commissioner or of any citizen. It shall be the duty of all food inspectors in cities to examine all complaints made to them of violation of this act, and to render assistance in enforcing its provisions. It shall also be the duty of all health boards in cities and health officers in townships to take cognizance of and report or prosecute all violations of this act that may be brought to their notice, or they may have cognizance of, within their jurisdiction.

49. Sec. 21. All acts and parts of acts inconsistent with this act are hereby repealed.

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## BUCKWHEAT FLOUR.

AN ACT in relation to the manufacture and sale of buckwheat flour.

(Act No. 208, Public Acts, 1903.)

*The People of the State of Michigan enact:*

50. Section 1. Within this State no person shall manufacture, offer or expose for sale, keep in possession with intent to sell, or sell any ground buckwheat containing any product of wheat, corn, rice or other foreign substance, unless each and every package thereof be distinctly and legibly branded or labeled "Buckwheat Flour Compound" in letters not less than one-half inch in length and be followed with the name of the maker and factory and the location of such factory.

51. Sec. 2. Any brand or label herein required shall be an inseparable part of the general or distinguishing label, and such label shall be that principal and conspicuous sign under which it is sold, and any other label or printed matter upon the package shall not be in contravention of the requirements of this act.

52. Sec. 3. The having in possession of any buckwheat flour compound, which is not branded or labeled as hereinbefore required and directed upon the part of any person engaged in the public or private sale of such article, shall, for the purpose of this act, be deemed prima facie evidence of intent to sell the same.

53. Sec. 4. The taking of orders or the making of agreements or contracts by any person, firm or corporation or by any agent or representative thereof, for the future delivery of buckwheat flour compound shall be deemed a sale within the meaning of this act.

54. Sec. 5. Whoever shall do any of the acts or things prohibited, or neglect or refuse to do any of the acts or things enjoined by this act, or in any way violate any of the provisions, shall be deemed guilty of a misdemeanor, and shall be punished by a fine not less than twenty-

five dollars nor more than one hundred dollars, or by imprisonment in the county jail for a period of not less than thirty nor more than ninety days, or by both such fine and imprisonment in the discretion of the court.

55. Sec. 6. Act number eight-four of the public acts of eighteen hundred ninety-seven, entitled "An act to prohibit and prevent adulteration, fraud and deception in the manufacture and sale of buckwheat flour," being sections four thousand nine hundred ninety-four to five thousand two, both inclusive, of the Compiled Laws of one thousand eight hundred ninety-seven is hereby repealed.

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## VINEGAR.

AN ACT in relation to the manufacture and sale of vinegar, and to repeal act number two hundred and twenty-four of the public acts of eighteen hundred and eighty-nine, approved July one, eighteen hundred and eighty-nine.

(Act No. 71, Public Acts, 1897.)

*The People of the State of Michigan enact:*

56. (C. L., 5003) Section 1. That no person shall manufacture for sale, offer or expose for sale, sell or deliver, or have in his possession with intent to sell, or deliver, any vinegar not in compliance with the provisions of this act. No vinegar shall be sold as apple, orchard or cider vinegar, which is not the legitimate product of pure apple juice, known as apple cider or vinegar, not made exclusively of said apple cider or vinegar into which foreign substance, drugs or acids have been introduced, as may appear upon proper test, and upon said test, shall contain not less than one and three-fourths per cent, by weight, of cider vinegar solids upon full evaporation at the temperature of boiling water.

57. (C. L., 5004) Sec. 2. All vinegar made by fermentation and oxidation without the intervention of distillation shall be branded "fermented vinegar," with the name of the fruit or substance from which the same is made. And all vinegar made wholly or in part from distilled liquor, shall be branded "distilled vinegar," and all of such distilled vinegar shall be free from coloring matter added during or after distillation and from color other than that imparted to it by distillation. And all fermented vinegar not distilled shall contain not less than one and three-fourths per cent, by weight, upon full evaporation (at the temperature of boiling water) of solids, contained in the fruit or grain from which said vinegar is fermented, and said vinegar shall contain not less than two and a half tenths of one per cent ash or mineral matter, the same being the product of the material from which said vinegar is manufactured. And all vinegar shall be made wholly from the fruit or grain from which it pur-

ports to be or is represented to be made, and shall contain no foreign substance, and shall contain not less than four per cent, by weight, of absolute acetic acid.

58. (C. L., 5005) Sec. 3. No person shall manufacture for sale, offer for sale, or have in his possession with intent to sell, any vinegar found upon proper test to contain any preparation of lead, copper, sulphuric or other mineral acid, or other ingredients injurious to health. And all packages containing vinegar shall be marked, stenciled or branded on the head of the cask, barrel or keg containing such vinegar with the name and residence of the manufacturer together with brand required in section two hereof.

59. (C. L., 5006) Sec. 4. Whoever violates any of the provisions of this act shall, upon conviction, be fined not less than fifty dollars nor more than one hundred dollars, or imprisonment in the county jail not to exceed ninety days and the costs of prosecution, or by both such fine and imprisonment in the discretion of the court.

60. Sec. 5. All acts and parts of acts contravening the provisions of this act are hereby repealed.

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## MILK.

AN ACT to prevent and punish offenders for the adulteration of milk, and the products made therefrom, and to repeal an act entitled "An act to prevent the adulteration of milk and to prevent the traffic in impure and unwholesome milk," approved March thirty-first, eighteen hundred and seventy-one.

(Act No. 26, Public Acts, 1873.)

*The People of the State of Michigan enact:*

61. (C. L., 11411) Section 1. That whoever shall knowingly sell to any person or persons, or sell, deliver, or bring to be manufactured to any cheese or butter manufactory in this State, any milk diluted with water, or in any way adulterated, or milk from which any cream has been taken, or milk commonly known as "skimmed milk," or shall keep back any part of the milk known as "strippings," with intent to defraud, or shall knowingly sell milk, the product of a sick or diseased animal or animals, or any milk produced from any cow fed upon the refuse of a distillery, or of a brewery, or upon any substance deleterious to the quality of the milk, or shall knowingly use any poisonous or any deleterious material in the manufacture of any cheese or butter, or shall knowingly sell or offer to sell any cheese or butter, in the manufacture of which any poisonous or deleterious substance has been used, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined not less than ten dollars nor more than one hundred dollars; and may be committed to the county jail until such fine shall be paid: Provided, That such imprisonment shall not exceed ninety days; and shall

be liable in double the amount of damages to the person or persons, firm, association, or corporation upon which such fraud shall have been committed. An act entitled "An act to prevent the adulteration of milk and to prevent the traffic in impure and unwholesome milk," approved March thirty-first, eighteen hundred and seventy-one, is hereby repealed: Provided, That any right accrued or forfeiture incurred under said act, shall remain valid and binding, and may be enforced under said act as if the same were not repealed.

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AN ACT to prevent the sale of impure, unwholesome, adulterated, or swill milk in the State of Michigan, and to provide for inspectors.

(Act No. 246, Public Acts, 1887.)

*The People of the State of Michigan enact:*

62. (C. L., 11412) Section 1. That it shall be unlawful for any person, either by himself or agent, to sell or expose for sale within the State of Michigan any unwholesome, watered, or adulterated or impure milk or swill milk or colostrum, or milk from cows kept upon garbage, swill or any substance in a state of fermentation or putrefaction or other deleterious substances, or from cows kept in connection with any family in which there are infectious diseases. The addition of water or ice to milk is hereby declared an adulteration.

[Am. by Act No. 219, P. A. 1889.]

63 (C. L., 11413) Sec. 2. Any person who shall violate any of the provisions of the preceding section shall be punished by a fine not to exceed one hundred dollars or (by) imprisonment not to exceed three months or by both such fine and imprisonment, in the discretion of the court.

64. (C. L., 11414) Sec. 3. It shall be the duty of the metropolitan police commissioners of the city of Detroit, by and with the consent and advice of the board of health of the city of Detroit, to appoint an inspector, who shall be a person of previous practical experience. Said inspector may be created captain, sergeant or roundsman of the said police force of the city of Detroit, at the option of the board of metropolitan police commissioners.

65. (C. L., 11415) Sec. 4. It shall be the duty of said inspector to personally view, so far as possible, all milk exposed for sale in said city, and to visit all dairy houses, barns, or stables in said city or the county of Wayne, to inspect the same, and the animals held therein, and to visit all places where milk is kept or exposed for sale in the city of Detroit, and to inspect and ascertain the condition of said milk. He may detail any patrolman of said city to assist him in the performance of any or all of the duties enjoined on him by this act: Provided, always, That said inspector and any policeman so detailed shall always

be subject to the provisions of the law establishing and governing the metropolitan police of said city.

66. (C. L., 11416) Sec. 5. It shall be the duty of said inspector or of his assistant, and of all other inspectors appointed under this act, to make complaint in writing before a police justice or justice of the peace, or other court having jurisdiction thereof, of every violation of this act coming to his knowledge.

[Am. by Act No. 219, P. A. 1889.]

67. (C. L., 11417) Sec. 6. Each and every quantity of milk sold or exposed for sale contrary to the provisions of this act, shall constitute a separate offense.

68. (C. L., 11418) Sec. 7. Any person who shall refuse to permit the said inspector, or his assistant (assistants,) to perform his duty under this act, either by refusing him entrance to his premises or by concealing any milk, or refusing to permit any milk or animal or premises wherein animals are kept, to be viewed and inspected as herein provided, or by in any manner hindering or resisting any said inspector or assistant inspector in the performance of his duty, shall be guilty of a misdemeanor, and punished therefor.

69. (C. L., 11419) Sec. 8. Authority is hereby given the common council of any city, and the board of trustees or council of any village, to appoint an inspector of milk in any such city or village, and to fix their compensation, and when appointed the said inspectors of milk shall have all the powers given by section four of this act, and shall perform all the duties required of inspectors of milk as provided herein, and such other powers and duties as may be conferred or imposed by the ordinances of said cities or villages.

70. (C. L., 11420) Sec. 9. Whoever shall adulterate by himself, or by his servant or agent, or sell, exchange or deliver, or have in his custody or possession with intent to sell or exchange the same, or exposes or offers for sale or exchange, adulterated milk or milk to which water or any foreign (substance) substances in any state of fermentation or putrefaction, or from sick or diseased cows, shall be guilty of a misdemeanor, and shall, for every such offense, be punished by a fine not exceeding one hundred dollars or by imprisonment in the county jail or the State House of Correction and Reformatory at Ionia not exceeding three months.

[Added by Act No. 219, P. A. 1889.]

71. (C. L., 11421) Sec. 10. Whoever shall adulterate, himself or by his servant or agent, sell, exchange or deliver, or have in his custody or possession with intent to sell or exchange the same, or exposes or offers for sale as pure milk, any skimmed milk from which the cream or any part thereof has been removed shall be guilty of a misdemeanor, and shall for such offense, be punished by the penalty provided in the preceding section.

[Added by Act No. 219, P. A. 1889.]

72. (C. L., 11422) Sec. 11. Any dealer in milk who shall by himself,

servant or agent, sell, exchange or deliver, or have in his custody or possession with intent to sell, exchange or deliver the same, milk from which the cream or any part thereof has been removed, unless in a conspicuous place above the center upon the outside of every vessel, can or package from which any such milk is sold, the words "Skimmed milk" are distinctly painted in letters not less than one inch in length, shall be guilty of a misdemeanor and shall be punished by a fine not exceeding one hundred dollars or by imprisonment in the county jail or Detroit House of Correction not exceeding three months.

[Added by Act No. 219, P. A. 1889.]

73. (C. L., 11423) Sec. 12. If milk sold or offered for sale under the provisions of this act as pure milk, is shown upon analysis by weight to contain more than eighty-seven and fifty one hundredths per centum of watery fluid, or to contain less than twelve and fifty one hundredths of milk solids, per centum, or less fat than three per centum, or if the specific gravity at 60 degrees Fahrenheit is not between 1 29-1000 to 1 33-1000, it shall be deemed to be adulterated. If milk sold or offered for sale under the provisions of this act as skimmed milk has a specific gravity at 60 degrees Fahrenheit less than 1,032, and greater than 1,037, it shall be deemed to be adulterated.

[Added by Act No. 219, P. A. 1889.]

74. (C. L., 11424) Sec. 13. Whenever any inspector of milk has reason to believe that any milk found by him is adulterated, he shall take specimens thereof and test the same with such instrument or instruments as are used for such purposes, and he shall make an analysis thereof, showing total solids, the percentage of butter, the percentage of water and the percentage of ash; and if the result of such test and analysis indicates that the milk has been adulterated or deprived of its cream or any part thereof, the same shall be prima facie evidence of such adulteration in a prosecution under this act.

[Added by Act No. 219, P. A. 1889.]

75. (C. L., 11425) Sec. 14. Any person who shall remove the cream or any part thereof from milk to be sold as pure milk to any manufactory in which milk is used as a material in the process of production, and any person who shall, in any manner, adulterate such milk, either by the addition of water or otherwise, shall be guilty of a misdemeanor, and shall, for every such offense, be punished by a fine not exceeding one hundred dollars, or by imprisonment in the county jail or Detroit House of Correction not exceeding ninety days.

[Added by Act No. 219, P. A. 1889.]

AN ACT in relation to the sale and delivery of milk.

(Act No. 106, Public Acts, 1899.)

*The People of the State of Michigan enact:*

76. Section 1. No person shall offer or expose for sale, sell, exchange or deliver, or have in his possession with intent to sell, exchange or deliver, any milk to which water, chemicals or preservatives, or any other foreign substance has been added. The term milk as used in this act shall include all skimmed milk, butter milk, cream and milk in its natural state as drawn from the cow.

77. Sec. 2. Whoever shall do any of the acts or things prohibited, or neglects or refuses to do any of the acts or things enjoined by this act, or in any way violates any of its provisions, shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than one dollar nor more than one hundred dollars and the costs of prosecution, or by imprisonment in the county jail not more than ninety days, or by both such fine and imprisonment, in the discretion of the court.

This act is ordered to take immediate effect.

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## OLEOMARGARINE.

AN ACT in relation to the manufacture and sale of oleomargarine or imitation butter.

(Act No. 147, Public Acts, 1899.)

*The People of the State of Michigan enact:*

78. Section 1. No person shall sell, expose or offer for sale or exchange, or have in his possession with intent to sell or exchange, any oleomargarine or other substance made in imitation of butter, and which is intended to be used as a substitute for butter, unless each and every vessel, package, roll or parcel of such substance has distinctly and durably printed, stamped or stenciled thereon in black letters the true name of such substance, in ordinary bold faced capital letters, not less than five line pica in size; and also the name and address of the manufacturer, together with the name of each and every article or ingredient used or entering into the composition of such substance, in ordinary bold faced letters, not less than pica in size.

79. Sec. 2. No person shall sell, exchange or deliver any oleomargarine or other substance made in imitation of butter, and which is intended to be used as a substitute for butter, unless he shall distinctly inform the purchaser by a verbal notice at the time of the sale that the same is a substitute for butter, and shall also deliver to the purchaser of each and every roll, package or parcel of such oleomargarine or other substance, at the time of the delivery of the same, a separate

and distinct label, on which is plainly and legibly printed in black ink in ordinary bold faced capital letters not less than five line pica in size, the true name of such substance and also the name and address of the manufacturer, together with the name of each article used and entering into the composition of such substance, in ordinary bold faced letters not less than pica in size.

80. Sec. 3. The proprietor or keeper of any store, hotel, restaurant, eating saloon, boarding house, or other place where oleomargarine is sold or furnished to persons paying for the same, shall have placed on the walls of every store or room where oleomargarine is sold or furnished a white placard on which is printed in black ink, in plain Roman letters of not less than three inches in length, and not less than two inches in width, the words "Oleomargarine Sold or Used Here," and shall at all times keep the same exposed in such conspicuous place as to be readily seen by any and all persons entering such store, or other room or rooms.

81. Sec. 4. No person shall use in any way, in connection or association with the sale or exposure for sale or advertisement of any substance designed to be used as a substitute for butter, the word "butter," "creamery," or "dairy," or the name or representation of any breed of dairy cattle, or any combination of such word or words and representation, or any other words or symbols or combinations thereof commonly used in the sale of butter.

82. Sec. 5. For the purpose of this act the word "butter" shall be understood to mean the food product usually known as butter, and which is made exclusively from milk or cream, or both, with or without common salt, and with or without additional coloring matter.

83. Sec. 6. For the purposes of this act certain manufactured substances, certain extracts and certain mixtures and compounds, including such mixtures and compounds with butter, shall be known and designated as "oleomargarine," namely: All substances heretofore known as oleomargarine, oleo, oleomargarine oil, butterine, lardine, suine and neutral; all mixtures and compounds of oleomargarine, oleo, oleomargarine oil, butterine, lardine, suine and neutral; all lard extracts and tallow extracts; and all mixtures and compounds of tallow, beef fat, suet, lard, lard oil, vegetable oil, butterine, lardine, suine and neutral; all lard extracts and tallow extracts; and all mixtures and compounds of tallow, beef fat, suet, lard, lard oil, vegetable oil, intestinal fat, and offal fat, made in imitation or semblance of butter, or when so made, calculated or intended to be sold or used as butter or for butter.

84. Sec. 7. Whoever violates any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty dollars, nor more than five hundred dollars, and the costs of prosecution, or by imprisonment in the county jail or State House of Correction and Reformatory at Ionia, for not less than six months nor more than three years, or by both such fine and imprisonment in the discretion of the court, in each and every offense. All acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

This act is ordered to take immediate effect.

AN ACT to prevent deception in the manufacture and sale of imitation butter.

(Act No. 22, Public Acts, 1901.)

*The People of the State of Michigan enact:*

85. Section 1. No person, by himself or his agents, or servants, shall render or manufacture, sell, offer for sale, expose for sale, or have in his possession with intent to sell, any article, product or compound made wholly or in part out of any fat, oil or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, which shall be in imitation of yellow butter produced from pure unadulterated milk or cream of the same: Provided, That nothing in this act shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form, and in such manner as will advise the consumer of its real character, free from coloration or ingredient that causes it to look like butter.

86. Sec. 2. Whoever violates any of the provisions of section one of this shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not less than fifty dollars nor more than five hundred dollars, and the costs of prosecution, of by imprisonment in the county jail or State House of Correction and Reformatory at Ionia for not less than six months nor more than three years, or by both such fine and imprisonment in the discretion of the court, for each and every offense.

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## RENOVATED BUTTER.

AN ACT in relation to the manufacture and sale of renovated butter.

(Act No. 243, Public Acts, 1903, as amended.)

*The People of the State of Michigan enact:*

87. Section 1. No person, firm or corporation shall manufacture for sale, offer or expose for sale, sell, exchange or deliver, or have in his possession with the intent to sell, exchange or deliver, any butter that is produced by taking original packing stock butter or other butter, or both, melting the same so that the butter fat can be drawn off or extracted, mixing the said butter fat with skimmed milk, or milk or cream, or other milk product, and rechurning or reworking the said mixture; nor shall any person, firm or corporation manufacture for sale, offer or expose for sale, sell, exchange or deliver, or have in his possession for any such purpose any butter which has been subjected to any process by which it is melted, clarified or refined, and made to resemble butter, and is commonly known as boiled, process or reno-

vated butter, and which for the purpose of this act is hereby designated as "Renovated Butter," unless the same shall be branded or marked as provided in section two of this act.

88. Sec. 2. Whoever, himself or by his agent or as the servant or agent of another person, shall sell, expose for sale or have in his custody or possession with the intent to sell any renovated butter as defined in section one of this act, shall have the words "Renovated Butter" conspicuously stamped, labeled or marked in one or two lines and in plain Gothic letters, at least three-eigths of an inch square, so that the words cannot easily be defaced, upon two sides of each and every tub, firkin, box or package containing said renovated butter; or if such butter is exposed for sale uncovered, or not in a case or package, a placard containing said words in the same form as above described in this section shall be attached to the mass in such a manner as to be easily seen and read by the purchaser. When renovated butter is sold from such packages or otherwise at retail, in print, roll or other form, before being delivered to the purchaser it shall be wrapped in wrappers plainly stamped on the outside thereof with the words "Renovated Butter" printed or stamped thereon in one or two lines, and in plain Gothic letters at least three-eighths of an inch square, and such wrapper shall contain no other words or printing thereon, and said words "Renovated Butter" so stamped or printed on the said wrapper shall not be in any manner concealed, but shall be in plain view of the purchaser at the time of the purchase: Provided, If at any time the laws of the United States provide that butter manufactured as is described in this act, shall be labeled "Process Butter," then and in such case only shall such substitution be permitted and the labeling of said butter as "Process Butter" shall be deemed a compliance with this act.

[Am. by Enrolled Act No. 77, Session Laws 1909.]

89. Sec. 3. Whoever shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than twenty-five dollars nor more than five hundred dollars, and the costs of prosecution, or by imprisonment in the county jail or Michigan Reformatory at Ionia, for not less than six months nor more than three years, or by both such fine and imprisonment, in the discretion of the court, for each and every offense.

90. Sec. 4. Act number two hundred fifty-four of the public acts of eighteen hundred ninety-nine, entitled "An act to regulate the sale of butter produced by taking original packing stock and other butter and melting the same so that the butter oil can be drawn off, mixed with skimmed milk or other material, and by emulsion or other process produce butter, and butter produced by any similar process and commonly known as "process" butter; providing for the enforcement thereof, and punishment for the violation of the same," is hereby repealed.

## CANDY.

AN ACT to prevent the adulteration of candies and confectioneries and the sale thereof, when so adulterated as to be injurious to the public health.

(Act No. 11, Public Acts, 1887.)

*The People of the State of Michigan enact:*

91. (C. L., 11409) Section 1. That any person or persons manufacturing for sale or knowingly selling or offering to sell any candies or confectioneries adulterated by the admixture of terra alba, barytes, talc or other earthy or mineral substances or any poisonous colors, flavors or extracts, or other deleterious ingredients deterimental to health, shall upon proper conviction thereof, before a court of competent jurisdiction, be punished by a fine not less than ten nor more than one hundred dollars, or imprisonment in the county jail not less than ten nor more than thirty days, or both such fine and imprisonment in the discretion of the court.

92. (C. L., 11410) Sec. 2. It is hereby made the duty of the local health officer or local board of health having jurisdiction thereof to investigate without unnecessary delay all complaints that may be properly brought before them and containing the facts as supported by affidavit of the parties complaining of the adulteration or sale of adulterated candies or confectioneries, and if after investigation by such officer or board reasonable cause for action is found to exist, then such officer or board shall at once give notice to the prosecuting attorney of the county in which such complaint is made, and make or cause to be made, before a proper officer, a formal complaint in writing and duly verified, and thereupon said prosecuting attorney shall immediately commence proceedings against the person or persons so offending.

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## LIQUORS.

AN ACT for the regulation of, manufacture and sale of spirituous and intoxicating liquors.

(Extract from Act No. 313, Public Acts, 1887.)

93. (C. L., 5403) Sec. 25. If any person shall adulterate any spirituous, or alcoholic liquors used or intended for drink, by mixing the same in the manufacture or preparation thereof, or by process of rectifying, or otherwise, with any deleterious drug, substance, or liquid, which is poisonous or injurious to health, except as hereinafter provided, or if any person shall sell, or offer to sell, any wine, or spirituous, or alcoholic liquors, or shall import into this State, any wine, or spirit-

uous, or intoxicating liquors and sell, or offer for sale such liquors, knowing the same to be adulterated, or shall sell, or offer to sell any spirituous or intoxicating liquors from any barrel, cask, or other vessel containing the same, and not branded as hereinafter provided, he shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars, nor less than fifty dollars, and shall be imprisoned in the jail of the county not more than six months, nor less than ten days.

94. (C. L., 5404) Sec. 26. It shall be the duty of every person or persons, engaged in the manufacture and sale of malt, spirituous, or alcoholic liquors, or in rectifying or preparing the same in any way, to brand on each barrel, cask, or other vessel containing the same, the name or names of the person, company, or firm manufacturing, rectifying or preparing the same, and also these words, "Pure and without drugs or poison."

95. (C. L., 5405) Sec. 27. No person shall sell at wholesale or retail, any ale, rum, wine or other malt or spirituous liquors from any barrel, cask, or vessel, unless the same shall have been branded and marked as aforesaid.

96. (C. L., 5406) Sec. 28. If any barrel, cask or other vessel containing any drugged or poisoned liquor shall be found in the possession of any wholesale or retail dealer in liquors, or in the possession of any person holding himself out as such a dealer, it shall be deemed prima facie evidence of the violation of the provisions of this act.

97. (C. L., 5407) Sec. 29. Any person who shall put into any barrel, cask, or other vessel, branded or marked as required by this act, any liquors drugged or adulterated as aforesaid, or who shall sell or offer for sale any such liquors, for the purpose and with the intent of deceiving any person in the sale thereof, or shall violate any of the provisions of sections twenty-six, twenty-seven, or twenty-eight, of this act, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished as provided in section twenty-five of this act.

98. (C. L., 5408) Sec. 30. The provisions of this act shall not be so construed as to prevent druggists, physicians, and persons engaged in the mechanical arts from compounding liquors for medicinal and mechanical purposes.

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## PEPPER.

AN ACT to provide for the manufacture and sale of black pepper in this State and to provide a penalty for the violation of the provisions of this act.

(Act No. 180, Public Acts, 1901.)

*The People of the State of Michigan enact:*

99. Section 1. Within this State no person, firm or corporation shall manufacture, offer or expose for sale, keep in possession with intent to sell, or sell any ground or whole black pepper, containing any foreign substance whatever. All black pepper shall contain not more than six

and one-half per cent ash or mineral matter and shall contain not less than twenty-five per cent starch as determined by the diastase method; and shall contain not less than six-tenths of one per cent nor more than one and three-fourths per cent of volatile ether extract; and shall contain not more than ten per cent not less than six and one-half per cent of non-volatile ether extract and shall contain not more than sixteen per cent of crude fibre.

100. Sec. 2. Whoever shall do any of the acts or things prohibited, or neglects or refuses to do any of the acts or things enjoined by this act, or in any way violates any of its provisions, shall be deemed guilty of a misdemeanor, and shall be punished by a fine not less than twenty-five dollars nor more than five hundred dollars and the costs of the prosecution, or by imprisonment in the county jail not more than ninety days, or by both such fine and imprisonment, in the discretion of the court.

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## CORN SYRUP.

AN ACT in relation to the sale of corn syrup.

(Act No. 123, Public Acts, 1903.)

*The People of the State of Michigan enact:*

101. Section 1. No person shall offer or expose for sale, have in his possession with intent to sell, or sell, any cane syrup, beet syrup, or glucose, unless the barrel, cask, keg, can, pail or package containing the same be distinctly branded or labeled with the true and appropriate name; nor shall any person offer or expose for sale, have in his possession with intent to sell, or sell any cane syrup or beet syrup mixed with glucose unless the barrel, cask, keg, can, pail or package containing the same be distinctly branded or labeled "Glucose Mixture" or "Corn Syrup" in plain gothic type not less than three-eighths of an inch square, with the name and percentage by weight of each ingredient contained therein plainly stamped, branded or stenciled on each package in plain Gothic letters not less than one-quarter of an inch square. Each and every package of syrup either simple or mixed shall bear the name and address of the manufacturer. Such mixtures or syrups shall have no other designation or brand than herein required that represents or is the name of any article which contains a saccharine substance; and all brands or labels required shall be an inseparable part of the general or distinguishing label, and that the general or distinguishing label shall be that principal and conspicuous sign under which it is sold.

102. Sec. 2. Whoever shall do any of the acts of things prohibited or neglect or refuse to do any of the acts or things required by this act, or in any way violate any of the provisions, shall be deemed guilty of a misdemeanor, and shall be punished by a fine not less than twenty-five dollars nor more than one hundred dollars, or by imprisonment in the county jail for a period of not less than thirty nor more

than ninety days, or by both such fine and imprisonment in the discretion of the court.

This act is ordered to take immediate effect.

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## PRESERVATIVES.

AN ACT in relation to the use of preservatives in food products.

(Act No. 7, Public Acts, 1905.)

*The People of the State of Michigan enact:*

103. Section 1. No person, firm or corporation shall manufacture, sell, offer for sale, expose for sale, or have in his possession with intent to sell, any food product containing benzoic acid or benzoate of sodium, or any other harmless preservative, unless each and every package containing the same shall, in the condition in which it is exposed for sale, be distinctly, conspicuously, and legibly branded, labeled or marked, in plain English letters, with the words "Prepared with" followed by the proper English name of the preservative used: Provided, That nothing in this act shall be construed to prohibit or regulate, by branding or otherwise, the use as a preservative of common salt, syrup, sugar, salt petre, spices, alcohol, vinegar or wood smoke: And Provided Further, That the provisions of this act shall not apply to dairy products.

104. Sec. 2. Whoever shall do any of the acts or things prohibited, or neglect or refuse to do any of the acts or things required by this act, or in any way violate any of its provisions, shall be deemed guilty of a misdemeanor, and shall be punished by a fine not less than ten dollars nor more than one hundred dollars, or by imprisonment in the county jail for a period of not more than ninety days, or by both such fine and imprisonment in the discretion of the court.

This act is ordered to take immediate effect.

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AN ACT to prohibit the adulteration of maple sugar, maple molasses and maple syrup.

(Act No. 170, Public Acts, 1893.)

*The People of the State of Michigan enact:*

105. (5007) Section 1. That it shall be unlawful for any person, dealer, firm, manufacturer or corporation to manufacture and sell, or offer for sale, any maple sugar, maple molasses or maple syrup that is in anywise adulterated with common sugar, beet sugar, glucose or any other foreign substance without distinctly marking, stamping or label-

ing the article or the package containing the same with the true and appropriate name of such article and the percentage in which common sugar, beet sugar, glucose or any other foreign substance enters into the composition of the same.

106. (5008) Sec. 2. Any person, dealer, firm, manufacturer or corporation, who shall sell or offer for sale, and who shall falsely stamp or misrepresent or label any cans, jugs, or packages containing maple molasses or maple syrup, and any person, dealer, firm, manufacturer or corporation who shall sell or offer for sale any maple sugar that is in anywise adulterated, who falsely misrepresents or labels or stamps the same, or knowingly permits such misrepresentation or false stamping or labeling, shall be deemed guilty of a misdemeanor and punished with a fine not less than fifty dollars, in case of vender, and in the case of manufacturers and those falsely or fraudulently stamping or labeling or misrepresenting such goods, shall be fined not less than five hundred dollars, nor more than one thousand dollars, and it shall be the duty of any board of health in this state, or food commissioner, should there be one, cognizant of any violation of this act to prosecute any person, dealer, firm, manufacturer, or corporation, which it has reason to believe has violated any of the provisions of this act, and after deducting the costs of trial and conviction the balance of fine recovered, one-half be placed in the township treasury wherein the conviction is made, the balance placed to the general fund of the county. Any (person) persons, dealer, firm, manufacturer or corporation who shall knowingly sell or offer for sale any cans, jugs, jars or packages containg maple molasses, maple syrup, or maple sugar, that is in anywise adulterated, shall be deemed guilty of a misdemeanor and punished by a fine of not more than one hundred dollars, or by imprisonment in the county jail for a period not to exceed three months, or by both such fine and imprisonment, at the discretion of the court.

107. (5009) Sec. 3. Any person, dealer, firm, manufacturer, or corporation, who shall falsely stamp or misrepresent or label any cans, jugs, jars, or packages, containing maple molasses, or maple syrup, or maple sugar, that is in anywise adulterated, or knowingly permits such (misrepresentation) misrepresentations or false stamping or labeling, shall be deemed guilty of a misdemeanor, and punished by a fine, not more than five hundred dollars, or by imprisonment in the county jail for a period of not more than one year, or by both such fine or imprisonment, in the discretion of the court.

## ICE CREAM.

AN ACT to regulate the manufacture and sale of ice cream within the limits of the State of Michigan.

(Enrolled Act No. 29, Session Laws, 1909.)

*The People of the State of Michigan enact:*

108. Section 1. No person, firm or corporation shall manufacture for sale, keep for sale, sell, barter, exchange or deal in ice cream which shall contain any substance other than milk, cream, eggs, sugar, and some neutral flavoring gelatin or vegetable gums or which contain other than the required amount of milk fat as hereinafter provided.

109. Sec. 2. No person, firm or corporation shall manufacture for sale, keep for sale, sell, barter, or deal in ice cream adulterated within the meaning of this act.

110. Sec. 3. Ice cream shall be deemed to be adulterated within the meaning of this act:

First, If it shall contain boric acid, formaldehyde, saccharine, or any other added substance or compound that is deleterious to health;

Second, It it shall contain salts of copper, iron oxide, ocres or any coloring substance deleterious to health: Provided, That this paragraph shall not be construed to prohibit the use of harmless coloring matter in ice cream when not used for fraudulent purposes;

Third, If it shall contain any deleterious flavoring matter, or flavoring matter not true to name;

Fourth, If it be an imitation of, or offered for sale under the name of another article.

Nothing in this act shall be construed to prohibit the use of not to exceed one-half of one per centum of pure gelatin, gum tragacanth or other vegetable gums.

111. Sec. 4. No ice cream shall be sold within the State containing less than twelve per centum milk fat, except where fruits or nuts are used for the purpose of flavoring when it shall not contain less than ten per centum milk fat.

112. Sec. 5. It shall not be lawful for any person, firm or corporation to sell, offer for sale, expose for sale, or have in possession with intent to sell, any ice cream in any container which is falsely labeled or branded as to the name of the manufacturer thereof or to misrepresent in any way the place of manufacture of ice cream or the manufacturer thereof.

113. Sec. 6. Each person, firm or corporation engaged in the manufacture of ice cream as a business within this State, after this act shall take effect, shall file with the Dairy and Food Commissioner an application for a license accompanied with a fee of five dollars, and upon receipt of such application the Dairy and Food Commissioner shall issue to the person, firm or corporation making such application a license to manufacture ice cream, as provided in this act, which license shall run for one year from the date of the application, and shall be renewed annually thereafter.

The money so collected by the Dairy and Food Commissioner shall be paid into the State treasury and be used to help defray the expenses of the office of the Dairy and Food Commissioner in addition to the annual appropriation therefor: Provided, That this section shall not apply except in cities of more than three thousand inhabitants, by the last United States census, to any person, firm or corporation manufacturing and selling ice cream by the dish direct to the consumer.

114. Sec. 7. Any person, firm or corporation who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction shall be fined not less than twenty-five dollars nor more than one hundred dollars, or by imprisonment in the county jail for not less than thirty days nor more than ninety days, or by both such fine and imprisonment in the discretion of the court.

115. Sec. 8. The Dairy and Food Commissioner shall be charged with the enforcement of the provisions of this act.

This act is ordered to take immediate effect.

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## WEIGHTS AND MEASURES.

(Enrolled Act No. 188, Session Laws, 1909.)

AN ACT to establish uniform weights and measures of the various products of cereals in barrels or the fractional parts thereof when packed for sale or exposed for sale to firms or persons within this State, and to provide for the marking of the weights on packages of the products of such cereals.

*The People of the State of Michigan enact:*

116. Section 1. When mill products of wheat, corn, rye or buckwheat, known as flour, grits, meal or compounds of the same, are placed or packed in barrels, fractional parts of a barrel or sacks to be sold or billed to any person or persons within this State, the standard weight or measure of a barrel or the fractional part thereof shall be as follows, viz:

One hundred ninety-six pounds for a barrel;
Ninety-eight pounds for one-half barrel;
Forty-nine pounds for one-quarter barrel;
Twenty-four and one-half pounds for one-eighth barrel;
Twelve and one-fourth pounds for one-sixteenth barrel;
Six and one-eighth pounds for one-thirty-second barrel.

The full and correct weights as herein established shall be placed in said barrel or fractional part thereof by the manufacturer, company, dealer, person or persons filling the same, and the weights as herein established shall be the legal weights in this State for such packages when they are bought or sold, offered or exposed for sale, or in possession with intent to sell, or sold and delivered, ordered or billed.

117. Sec. 2. No person or persons shall sell, offer or expose for sale in this State by the barrel, or by the fractional parts of a barrel as

herein established, any of the mill products specified in section one hereof, unless the barrel or fractional part of such barrel shall contain the full weight of such mill product as is provided for in section one hereof.

118. Sec. 3. Before any package containing the mill products or compounds of such mill products specified in section one of this act shall be sold or offered or exposed for sale in this State, the number of pounds contained therein shall be plainly printed or stamped on the face label in plain English letters and numbers not less than one-half inch high. When such packages are sold as one-half, one-quarter, one-eighth, one-sixteenth or one-thirty-second of a barrel they shall be so marked in addition to the number of pounds marked thereon as herein provided.

119. Sec. 4. No manufacturer, company, dealer or person shall abstract any part of the mill products from the standard packages or fractional parts named in section one, and sell such package as a barrel or fractional part of a barrel as defined in section one.

120. Sec. 5. Any manufacturer, company, dealer, person or persons who shall knowingly sell, offer or expose for sale or for distribution in this State any package containing mill products of the cereals enumerated in section one which are stamped or labeled with a greater number of pounds than such package actually contains, or who shall put up or sell in this State any of the mill products of the above named cereals in a manner contrary to the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than twenty-five dollars nor more than five hundred dollars and the costs of prosecution, or by imprisonment in the county jail or the Michigan reformatory at Ionia for not less than ninety days nor more than one year or by both such fine and imprisonment in the discretion of the court for each and every offense: Provided, however, That nothing in this act shall be construed to cover or affect sales or shipments made to any manufacturer, company, dealer, person or persons outside of this State and not intended for sale or shipment back into this State.

121. Sec. 6. It shall be the duty of the Dairy and Food Commissioner to investigate all complaints of violations of this act, and to take all steps necessary to its enforcement. It shall be the duty of all prosecuting officers of this State to prosecute to completion all suits brought under the provisions of this act upon complaint of said commissioner or any person.

122. Sec. 7. This act shall take effect and be operative from and after January first, nineteen hundred ten.

## LINSEED OR FLAXSEED OIL.

(Enrolled Act No. 64, Session Laws, 1909.)

AN ACT to prevent the adulteration of linseed oil or flaxseed oil and to prevent fraud in the sale thereof and in the sale of compounds thereof, and to repeal all acts in conflict herewith.

*The People of the State of Michigan enact:*

'123. Section 1. No person, firm or corporation, by himself, his servant or his agent, or as the servant or agent of any other person, firm or corporation, shall manufacture or mix for sale, sell, offer or expose for sale, or have in his possession with intent to sell in this State, under the name of raw linseed oil or raw flaxseed oil, any substance which is not wholly the product obtained from well cleaned flaxseed or linseed, and unless the aforesaid oil also fulfills the requirements of the nineteen hundred edition of the Pharmacopoeia of the United States, which follows:

1. Specific gravity 0.925 to 0.935 at 25 deg. C. (77 deg. F.). It does not congeal at temperatures above -20 deg. C. (-4 deg. F.). It is soluble in about ten parts of absolute alcohol and in all proportions in ether, chloroform, petroleum, benzine, carbon disulphide and oil of turpentine. It should not more than slightly redden blue litmus paper, previously moistened with alcohol (limit of free acid). The oil should be completely saponifiable with alcoholic potassium hydroxide T. S. and the resulting soap should be completely soluble in water without leaving an oily residue, (absence of mineral oils and rosin oils). If 2 CC. of the oil be warmed and shaken in a test tube with an equal volume of glacial acetic acid, and if to this mixture, after cooling, one drop of sulphuric acid be added, a greenish color should be produced. (A violet color under these circumstances indicates the presence of rosin oils). Linseed oil saponified by alcoholic potassium hydroxide T. S. should show a saponification value of from 187 to 195. If 0.15 CC. of linseed oil be dissolved in 10 CC. of chloroform in a 250 CC. flask and 25 CC. of a mixture of equal volume of alcoholic iodine T. S. and alcoholic mercuric chloride T. S. added, and if, after standing for sixteen hours, protected from the light, 20 CC. potassium iodide T. S. be introduced and the mixture diluted with 50 CC. of water, on titrating the excess of iodine with tenth normal sodium thiosulphate V. S. an iodine value of not less than 170 should be obtained. No person, firm or corporation, by himself, his servant or his agent, or as the servant or agent of any other person, firm or corporation, shall manufacture or mix for sale, sell, offer or expose for sale or have in his possession with intent to sell in this State, any substance as boiled linseed oil or as boiled flaxseed oil, unless the same shall have been prepared by heating raw linseed oil, as defined above: Provided, That if drier is used in said boiled linseed oil or boiled flaxseed oil, the same shall have been prepared by incorporating said drier with raw linseed oil, as defined above, at a tem-

perature of not less than 225 deg. Fahrenheit, and furthermore contains not less than 96 per cent of linseed oil; and for the purpose of this act it shall also be deemed a violation thereof if said boiled linseed oil prepared either with or without drier does not conform to the following requirements: 1. Its specific gravity at 60 deg. Fahrenheit must be not less than 0.935 and not greater than 0.945; 2. Its saponification value (Koettstorfer figure) must not be less than 186; 3. Its iodine number (Huebl's method) must be not less than 160; 4. Its acid value must not exceed 10; 5. The volatile matter expelled at 212 deg. Fahrenheit must not exceed one-half of one per cent; 6. No mineral oil shall be present and the amount of unsaponifiable matter as determined by standard methods shall not exceed 2.5 per cent; 7. The film left after flowing the oil over glass and allowing it to drain in a vertical or nearly vertical position must dry free from tackiness in not to exceed twenty hours, at a temperature of about 70 deg. Fahrenheit. Linseed oil or flaxseed oil which does not conform to the foregoing requirements shall be deemed to be adulterated within the meaning of this act.

124. Sec. 2. No person, firm or corporation, either by himself or another, shall sell, offer or expose for sale, or have in his possession with intent to sell in this State any linseed oil or flaxseed oil, except under its true name, and unless each barrel, keg or can of such oil has plainly and durably painted, stamped, stenciled, labeled or marked thereon the true name of such oil in ordinary bold-faced capital letters, not less than five lines pica in size, together with the name and address of the manufacturer, jobber or dealer: Provided, That if the contents of the package be less than twenty-five gallons, the type shall not be less than two lines pica in size. Proof that any person, firm or corporation has or had possession of any oil or compound which is adulterated or misbranded within the meaning of this act shall be prima facie evidence that the possession thereof is in violation of this act.

125. Sec. 3. Linseed oil compounds or flaxseed oil compounds designed to take the place of raw or boiled linseed oil or raw or boiled flaxseed oil as defined in section one of this act, whether sold, offered or exposed for sale under invented proprietary names or titles or not, shall bear conspicuously upon the containing vessel, in capital letters not less than five lines pica in size, the word "Compound," followed immediately with the true distinctive names of the actual ingredients in the order of their greater preponderance, in the English language, in plain legible type of the same size, not less than two lines pica in size, in continuous list with no intervening matter of any kind, and shall also bear the name and address of the manufacturer, jobber or dealer. Any oil or compounds required to be branded by the provisions of this act and not complying with sections two and three shall be deemed to be misbranded within the meaning of this act.

126. Sec. 4. It is hereby made a duty of the State Dairy and Food Commissioner to enforce the provisions of this act.

127. Sec. 5. The State Dairy and Food Commissioner, his agents, assistants, inspectors, chemists or others appointed by him, shall have full rights of ingress and egress to the premises occupied by parties who manufacture, sell or deal in linseed oil or flaxseed oil, or linseed oil compounds or flaxseed oil compounds, and also shall have power and authority to open any tank, barrel, can or other vessel believed to contain such

oil and inspect the contents thereof and to take therefrom samples for analysis. In case any samples so taken shall prove on analysis to be adulterated or misbranded in violation of the provisions of this act it shall be the duty of the State Dairy and Food Commissioner to proceed against the offender as herein provided. No person shall obstruct the State Dairy and Food Commissioner or any of his assistants by refusing entrance to any place which he desires to enter in the discharge of his official duty as provided in this act, nor shall any person refuse to deliver to him a sample of oil when same is requested and when the value thereof is tendered.

128. Sec. 6. Any person, firm or corporation convicted of violating any of the provisions of the foregoing act shall, for the first offense be punished by a fine in any sum not less than twenty-five dollars and not more than one hundred dollars or by imprisonment in the county jail not exceeding thirty days, or by both such fine and imprisonment in the discretion of the court; and for the second and each subsequent offense by a fine of not less than fifty dollars and not more than two hundred dollars or by imprisonment in the county jail not exceeding one year, or both in the discretion of the court; or the fine above may be sued for and recovered before any justice of the peace or any court of competent jurisdiction, in the county where the offense shall have been committed, at the instance of the State Dairy and Food Commissioner or any other person in the name of the people of the State of Michigan as plaintiff and shall be recovered in an action of debt.

129. Sec. 7. All acts and parts of acts inconsistent with this act are hereby repealed.

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## DRUGS.

(Enrolled Act No. 86, Session Laws, 1909.

AN ACT to prohibit and prevent adulteration, misbranding, fraud and deception in the manufacture and sale of drugs and drug products in the State of Michigan, and to provide for the enforcement thereof.

*The People of the State of Michigan enact:*

130. Section 1. No person shall within this State manufacture for sale, have in his possession with intent to sell, offer or expose for sale, or sell, any drug or drug product which is adulterated or misbranded within the meaning of this act.

131. Sec. 2. The term "drug" as used in this act shall include all medicines and preparations recognized in the United State Pharmacopoeia or National Formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease of either man or other animals.

132. Sec. 3. An article shall be deemed to be adulterated within the meaning of this act:

First, If, when it is sold under or by a name recognized in the United States Pharmacopoeia or National Formulary, it differs from the stand-

ard of strength, quality or purity as determined by the test laid down in the United States Pharmacopoeia or National Formulary official at the time of investigation: Provided, That no drug defined in the United States Pharmacopoeia or National Formulary shall be deemed to be adulterated under this provision if the standard of strength, quality or purity be plainly stated upon the principal label of the bottle, box or other container thereof, although the standard may differ from that determined by the test laid down in the United States Pharmacopoeia or National Formulary;

Second, If its strength or purity fall below the professed standard or quality under which it is sold.

133. Sec. 4. An article shall be deemed to be misbranded within the meaning of the act:

First, If it is an imitation of, or offered for sale under the name of another article;

Second, If the contents of the package as originally put up shall have been removed in whole or in part, and other contents shall have been placed in such package, or if the package fail to bear a statement on the label of the quantity or proportion of any alcohol, antipyrin, opium, morphine, codeine, heroin, cocaine, alpha or beta eucaine, chloroform, cannabis, indica, chloral hydrate or acetanilide, or any derivative or preparation of any such substances, contained therein: Provided, That nothing herein shall be construed to apply to the dispensing of prescriptions written by regularly licensed practicing physicians, veterinary surgeons and dentists, and kept on file by the dispensing pharmacist, nor to such drugs as are recognized in the United States Pharmacopoeia and National Formulary, and which are sold under the name by which they are so recognized;

Third, If the package containing it or its label shall bear any statement, design or device regarding the ingredients or the substances contained therein, which statement, design or device shall be false or misleading in any particular, and to any drug or drug product which is falsely branded as to the state, territory or country in which it is manufactured or produced.

134. Sec. 5. The president of the board of pharmacy, the president of the State Board of Health and the Dairy and Food Commissioner shall jointly make such rules and regulations as may be necessary for the enforcement of this act.

135. Sec. 6. It shall be the duty of the Dairy and Food Commissioner to investigate all complaints of violations of this act and take all steps necessary to its enforcement; and to this end he shall appoint two drug inspectors who shall be registered pharmacists, and one competent analyst; which inspectors and analyst shall hold office at the pleasure of said commissioner, and until others are appointed; and the said Dairy and Food Commissioner or his deputy and the said drug inspectors or any of them shall in a lawful manner inquire into the drug products which are manufactured or sold or exposed or offered for sale in this State, and may in a lawful manner procure samples of the same for analysis; and the said Dairy and Food Commissioner, his deputy, or said drug inspectors or any of them, shall have power to enter into any factory, store, salesroom, drug store or laboratory or place where he has reason to believe drug products are made, stored, sold or

offered for sale, and open any cask, jar, bottle or package containing, or supposed to contain any drug product, and take therefrom samples for analysis. The person making such inspection shall take such sample of such article or product in the presence of at least one witness, and he shall, in the presence of said witness mark or seal such sample and shall tender at the time of taking to the manufacturer or vendor of such product, or to the person having the custody of the same, the value thereof, and a statement in writing for the taking of such sample. The said Dairy and Food Commissioner shall direct said analyst to make due and careful examination of such sample and report to him the result of such analysis, and if the same is found to be adulterated or misbranded within the provisions of this act it shall be the duty of said commissioner, his deputy, or any drug inspector assigned to such duty to make complaint against the manufacturer or vendor thereof in the proper county and furnish all evidence thereof to obtain a conviction of the offense charged, and in no case shall the Dairy and Food Commissioner or drug inspector making such complaint be required to furnish security for costs in any action instituted by him having for its object the enforcement of this act: Provided, Nothing herein contained shall be held to prohibit or prevent other inspectors or chemists connected with the office of the Dairy and Food Commissioner from performing any of the duties herein imposed upon the said drug inspectors and analyst, whenever in the opinion of said Dairy and Food Commissioner the work of his office can be expedited thereby.

136. Sec. 7. In construing and enforcing the provisions of this act, the act, omission or failure of any officer, agent or other person acting for or employed by any corporation, company, society or association within the scope of his employment or office, shall, in every case, be also deemed to be the act, omission or failure of such corporation, company, society or association, as well as that of the person: Provided, That no dealer shall be prosecuted under the provisions of this act when he can establish a guaranty in accordance with the provisions of the national food and drugs act, June thirtieth, nineteen hundred six, or a guaranty signed by the wholesaler, jobber, manufacturer or other parties residing in this State, from whom he purchased such article, to the effect that the same is not adulterated nor misbranded within the meaning of this act. Said guaranty to afford protection shall contain the name and address of the party or parties making the sale of such article to such dealer and in such case, if such guaranty was given in this State, said party or parties shall be amenable to the prosecution, fines and other penalties which would attach in due course to the dealer under the provisions of this act: Provided, however, That said guaranty shall not afford protection to the vendor in any case if said product is adulterated or misbranded within the meaning of this act, and if said vendor shall have been previously notified in writing by the Dairy and Food Commissioner to that effect: Provided, further, That in no case shall the Dairy and Food Commissioner serve such notice upon any vendor of any such product until said Dairy and Food Commissioner shall have notified the manufacturer or jobber of any such product of the findings of the State Analyst with reference to such product; such notification to such manufacturer or jobber shall

be in writing and shall be mailed ten days previous to any notice sent to any vendor in accordance with this section.

137. Sec. 8. Nothing in this act shall affect any drug product manufactured in this State for export to any foreign country or for sale in any other state, when such drug product is not adulterated or misbranded within the meaning of the laws of such foreign country or state; but if said article shall be in fact sold or offered for sale for use or consumption within this State, then such article shall not be exempt from the operation of any of the provisions of this act.

138. Sec. 9. It shall be the duty of each prosecuting attorney, when called upon by the said Dairy and Food Commissioner, or by any person by him authorized as aforesaid, to render any legal assistance in his power in proceedings under the provisions of this act or any subsequent act relative to the adulteration or misbranding of drug products.

139. Sec. 10. Whoever shall do any of the acts or things prohibited, or wilfully neglect or refuse to do any of the acts or things enjoined by this act, or in any way violate any of its provisions, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine of not less than twenty-five nor more than five hundred dollars, or by imprisonment in the county jail for a period of not more than ninety days, or by both fine and imprisonment in the discretion of the court.

140. Sec 11. The sum of six thousand dollars is hereby appropriated for the fiscal year ending June thirtieth, nineteen hundred eleven, and for each fiscal year thereafter there is hereby appropriated the sum of six thousand dollars. Out of the amounts appropriated by this act shall be paid all salaries and expenses provided for herein.

# MICHIGAN SUPREME COURT.

## DECISIONS RELATIVE TO DAIRY AND FOOD LAWS.

## PEOPLE v. SNOWBERGER.

(Opinion filed May 25, 1897.)

Adulteration of Food—Statutory Offenses—Intent—Police Power.

1. It is competent for the legislature under the police power, to provide for the protection of the public health by making it an offense punishable by fine and imprisonment to sell adulterated food or drink, irrespective of the seller's knowledge of the adulteration.
2. Act No. 193, Public Acts 1895, prohibits the manufacture or sale of adulterated articles of food or drink, and prescribes what shall be deemed adulteration within the meaning of the act. Section 8 forbids any person from *knowingly* offering for sale cheese which is falsely labeled; this being the only case in which knowledge is expressly made an element of an offense designated by such statute. *Held*, that proof of guilty knowledge or intent is not essential to the conviction of one who sells adulterated food.

(113 Mich. 86.)

Exceptions before judgment from Monroe; Kinne, J.

Michael Snowberger was convicted of selling adulterated food, in violation of Act No. 193, Public Acts of 1895.

Convicted affirmed.

William Look and Ira G. Humphrey, for appellant.

Bowen, Douglas & Whiting, of counsel.

Willis Baldwin, Prosecuting Attorney, for the people.

Long, C. J.: Respondent was convicted under an information charging that: "On the 19th day of April, A. D. 1897, at the city of Monroe, and in the county aforesaid, Michael Snowberger did offer for sale, and sell, to Carl Franke, an adulterated article of food, to wit: A quantity of mustard, to wit, a quarter of a pound, colored and adulterated with turmeric, whereby the said mustard, as an article of food, was damaged and its inferiority concealed and whereby it was made to appear of better and greater value than it really was, the same not being a mixture or compound recognized as ordinary articles or ingredients of articles of food; contrary to the form of the statute in such case made and provided," etc.

The information was filed under Act No. 193, Public Acts 1895, entitled "An act to prohibit and prevent adulteration, fraud and deception in the manufacture and sale of articles of food and drink." The act provides:

Section 1. "No person shall within this State manufacture for sale, offer for sale, or sell any article of food which is adulterated within the meaning of this act."

Section 2. "The term food as used herein, shall include all articles used for food or drink, or intended to be eaten or drunk by man, whether simple, mixed or compound."

Section 3. "An article shall be deemed adulterated within the meaning of this act: One, if any substance or substances have been mixed with it so as to lower or depreciate or injuriously affect its quality, strength or purity; Two, If any inferior or cheaper substance or substances have been substituted wholly or in part for it; Three, If any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it; Four, If it is sold under the name of another article; Five, If it consists wholly or in part of a diseased, decomposed, putrid, infected, tainted or rotten animal or vegetable substance or article, whether manufactured or not, or in case of milk, if it is the product of a diseased animal; Six, If it is colored, coated, polished or powdered, where damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is; Seven, If it contains an added substance or ingredient which is poisonous or injurious to health: Provided, That the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food, if each and every package sold or offered for sale be distinctly labeled as mixtures or compounds, and are not injurious to health."

Section 19 makes any violation of the act a misdemeanor and provides a penalty by a fine of not less than $100 nor more than $500, or by imprisonment in the county jail, etc.

On the trial respondent admitted, that on the 19th day of April, 1897, he, at the city of Monroe, this State, offered for sale and did sell to Carl Franke a quantity of mustard, to wit, a quarter of a pound which was afterwards found upon a chemical examination to be colored and adulterated with turmeric, whereby the said mustard as an article of food was damaged and its inferiority concealed, and it was thereby made to appear of greater and better value that it really was; the same not being a mixture or compound recognized as an ordinary article or ingredient of articles of food.

But he claimed that said article of mustard, so sold was purchased by him as a pure article in good faith, and that he believed at the time of the purchase by him and also at the time of the sale to the said Franke, that the same was pure mustard, free from any coloring and adulteration with turmeric or any other coloring or adulterant and that no inferiority was concealed whereby it was made to appear of greater or better value that it really was; that at the time he purchased the same he asked for pure mustard and that the same was warranted to him as pure; that he did not make or cause to have made a chemical examination of the same and did not inform himself or endeavor to ascertain the methods of determining pure from impure mustards, but relied upon the representations of his vender and the appearance of the article to the eye; and that he did not intend to violate the law.

From such conviction respondent appeals.

It is the contention of counsel for respondent that it was the intent of the legislature to provide by the act that no person should be convicted and punished for selling adulterated food or drink without showing that he knew the same to be adulterated; that the information does not charge such knowledge, and the proofs disclose that respondent acted in good faith and in the belief that the article sold was pure and unadulterated.

The act cannot be so construed. The offense under the act consists in selling an article intended to be eaten or drunk which is adulterated. Section 8 of the act shows conclusively that the legislature did not in-

tend to make criminal intent or guilty knowledge a necessary ingredient of the offense. As a rule there can be no crime without a criminal intent; but this rule is not universal.

In People v. Roby, 52 Mich. 577 (50 Am. Rep. 270), the respondent was convicted of the offense under the statute of keeping his saloon open on Sunday. It was there said: "It is contended that to constitute an offense under the section referred to (How. Stat., Sec. 2274), there must be some evidence tending to show an intent on the part of the respondent to violate it. * * * * The section under which Roby is prosecuted makes the crime consist, not in the affirmative act of any person but in the negative conduct of failing to keep the saloon closed. As a rule there can be no crime without criminal intent; but this is not by any means a universal rule. One may be guilty of the high crime of manslaughter when his only fault is gross negligence, and there are many other cases where mere neglect may be highly criminal. Many statutes which are in the nature of police regulations, as this is, impose criminal penalties irrespective of any intent to violate them; the purpose being to require a degree of diligence for the protection of the public which shall render violation impossible."

Many cases are cited in that case where convictions were sustained although the element of guilty knowledge was lacking. Thus in Massachusetts a person may be convicted of the crime of selling intoxicating liquors as a beverage though he did not know it to be intoxicating.

Com. v. Boynton, 2 Allen, 160.

And of the offense of selling adulterated milk, though ignorant of its adulteration.

Com. v. Farren, 9 Allen, 489.
Com. v. Nichols, 10 Allen, 199.
Com. v. Waite, 11 Allen, 264.
Com. v. Smith, 103 Mass., 444.

In Missouri a magistrate may be liable to the penalty for performing the marriage ceremony for minors without consent of parents or guardians, though he may suppose them to be of the proper age.

Beckham v. Nacke, 56 Mo., 546.

Where the killing and sale of a calf under a specified age is prohibited there may be a conviction though the party was ignorant of the animal's age.

Com. v. Raymond, 97 Mass., 567.

In People v. Welsh, 71 Mich. 548, this court in speaking of People v. Roby, supra, said: "When a statute does not make intent an element of the offense, but commands an act to be done or omitted which in the absence of the statute might have been done or omitted without culpability, ignorance of the fact or state of things contemplated by the statute will not excuse its violation;" citing:

State v. Hartfiel, 24 Wis., 60.

In the late case in this court of Walcott v. Judge of Superior court, 112 Mich. 311, the relator, as prosecuting attorney of the county, filed

an information against one Fred Saunders, charging him with being engaged in selling liquor without giving the bond required by the statute. The bond was fair upon its face, but one of the sureties, it appears, was disqualified under section 2283dl, 3 How. Stat. The information did not allege that respondent had knowledge of this defect in the bond. The information was quashed by the court below, and the relator asked the aid of mandamus to compel the respondent to reinstate the case. It was said by this court in the majority opinion: "It was the intention of the legislature to make the execution and delivery of the prescribed bond a condition precendent to sale, and to require the person desiring to engage in the business mentioned to assume the responsibility of knowing that the bond when presented complies in all essential particulars with the law. He must know that his sureties are males, that they are resident freeholders of the township, village or city in which the business is to be carried on, that they hold none of the offices prohibited by the act, and that at the time the bond is filed neither is a surety upon more than two bonds required by the act."

It appeared that one of the sureties was already upon more than two bonds; and the writ was granted compelling the respondent to reinstate the case. The case of People v. Roby was cited in that case in support of the proposition that intent was not an ingredient of the offense.

These regulations are under the police power of the State. Undoubtedly it was competent for the legislature to prohibit the sale of adulterated articles of food and drink. The police power of the State extends to the protection of the health as well as of the lives and property of the citizens. Generally it is for the legislature to determine what laws and regulations are needed to protect the public health and secure the public comfort and safety. If it passes an act ostensibly for the public health and thereby destroys or takes away the property of the citizen or interferes with his liberty it is for the courts to determine whether it relates to and is appropriate to promote such public health. Under the police power the conduct of individuals and the use of property may be regulated so as to interfere to some extent with the freedom of the one and the enjoyment of the other. It cannot be doubted that the legislature intended by this act to protect the public against the harmful consequences of sales of adulterated food, and to the end that its purpose might not be defeated to require the seller at his peril to know that the article which he offers for sale is not adulterated.

As was said by the supreme court of Ohio, in State v. Kelly, 54 Ohio St. 166: "If this statute had imposed upon the State the burden of proving * * * * his knowledge of its adulteration, it would thereby have defeated its declared purpose."

In State v. Smith, 10 R. I. 260, the court, in speaking of the offense of selling adulterated milk, said: "Counsel for defendant asked the court to charge that there must be evidence of a guilty intent on the part of the defendant and of a guilty knowledge in order to convict him. Our statute in that provision of it, under which this indictment was found does not essentially differ from the statute of Massachusetts, and there previous to the enactment of our statute the supreme court had determined that a person might be convicted although he had no knowledge of the adulteration; the intent of the legislature being that the seller of milk

should take upon himself the risk of knowing that the article he offers for sale is not adulterated."

Statutes in many states have been passed providing that whoever sells, or keeps or offers for sale adulterated milk, or milk to which water or other foreign substance has been added shall be punished, etc. Under these statutes it has been decided many times that the risk is upon the seller of knowing that the article he offers for sale is not adulterated, and that it is not necessary in an indictment under such a statute to allege or prove criminal intent or guilty knowledge.

Com. v. Smith, 103 Mass., 444.
Com. v. Warren, 160 Mass., 533.
People v. Clipperly, 101 N. Y., 634.

The same rule that no criminal intent is necessary has been held to apply under an act forbidding the sale of oleomargarine or other imitations of dairy products, unless express notice be given to the purchaser.

Bayles v. Newton, 50 N. J., L. 549.
Com. v. Gray, 150 Mass., 327.

The English rule is in keeping with the doctrine in this country on this subject.

Roberts v. Egerton, L. R., 9 Q. B., 494.

The statute not requiring knowledge on the part of the seller to make the offense complete, we are satisfied that the conviction must be sustained. No case has been cited, and we are not able to find one, where a contrary doctrine is laid down. The act may work hardship in many cases; but that question is one to be addressed to the legislature and not to the courts. As we have said, it was within the power of the legislature to pass the act making it an offense punishable with fine and imprisonment to sell adulterated food or drink, although the person selling the same has no knowledge that it is adulterated. Under this statute one making sales must do so at his peril.

The conviction is affirmed.

Grant, J., did not sit. The other justices concurred.

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## PEOPLE v. WORDEN GROCER CO.

(Opinion filed December 6, 1898.)

Constitutional Law—Act to Prevent Sale of Adulterated Vinegar—Complaint—Reasonableness of Statute—Defense.

1. The title to an act reading "An act in relation to the manufacture and sale of vinegar, and to repeal Act No. 224 of the Public Acts of 1889, approved, etc.," held broad enough to support an enactment to prevent deception in the sale of vinegar or to prevent adulteration of vinegar.
2. A conviction for a sale of "fermented cider vinegar," which was not up to the standard prescribed by Act No. 71, Public Acts of 1897, may be had under a complaint drawn under section 2 of the act.
3. The question as to whether the requirements of an act passed to prevent the sale of adulterated vinegar are such as to render the act unreasonable, cannot be determined by the courts and does not raise a question of fact for determination by a jury.

4. Where a sample of vinegar is taken from a dealer for the purpose of testing it to see if it conforms to the standard required by law it is not necessary that a sample be left with the dealer.
5. A prosecution for a sale of vinegar in violation of Act No. 71, Public Acts of 1897, cannot be defended on the ground that the person so manufacturing or selling vinegar below the standard has no knowledge that it is not within the standard prescribed.

Error to the circuit court of Kent county; Allen C. Adsit, J.

Appeal of the Worden Grocer Co. from a conviction of a violation of Act No. 71, Public Acts of 1897. Affirmed.

Frank A. Rodgers, Prosecuting Attorney; Benn M. Corwin, Assistant Prosecuting Attorney, for the people.

Rood & Hindman, for respondent.

Long, J.: The complaint in this cause charges that the defendant: "On February 5, 1898, did unlawfully sell and deliver to John T. Owens of Benton Harbor, Michigan, a large quantity, to wit: One barrel of vinegar which was not then and there in compliance with the provisions of Act No. 71, Public Acts, 1897, in this, viz.: That said vinegar was sold as "fermented cider vinegar" and branded as such; that said vinegar contained less than one and three-fourths per cent by weight upon full evaporation (at the temperature of boiling water) of solids contained in the fruit from which said vinegar is fermented, to wit: One and fifty-one one-hundredths per cent of solids; and said vinegar contained less than two and a half tenths of one per cent ash or mineral matter, the same being the product of the material from which said vinegar was manufactured, to wit: Eight one-hundredths of one per cent of ash or mineral matter, against the form of the statute in such case made and provided," etc.

The cause was commenced in the police court, and, being removed to the circuit, came on to be heard before a jury. The defendant refused to plead, and counsel for defendant thereupon made a motion to quash the complaint and summons for several reasons which will hereafter be discussed. The court upon the trial directed a verdict of guilty, and the cause comes to this court on exceptions before judgment.

The title of the act reads: "An act in relation to the manufacture and sale of vinegar, and to repeal Act No. 224 of the Public Acts of 1889, approved," etc. Sections one and two of the act, being the sections in question, provide:

"Section 1. The People of the State of Michigan enact, That no person shall manufacture for sale, offer or expose for sale, sell or deliver, or have in his possession with intent to sell or deliver, any vinegar not in compliance with the provisions of this act. No vinegar shall be sold as apple, orchard or cider vinegar, which is not the legitimate product of pure apple juice, known as apple cider or vinegar not made exclusively of said apple cider or vinegar into which foreign substance, drugs or acids have been introduced, as may appear upon proper test, and upon said test, shall contain not less than one and three-fourths per cent, by weight, of cider vinegar solids upon full evaporation at the temperature of boiling water.

"Section 2. All vinegar made by fermentation and oxidation without the intervention of distillation shall be branded 'fermented vinegar' with the name of

the fruit or substance from which the same is made. And all vinegar made wholly or in part from distilled liquor shall be branded 'distilled vinegar,' and all of such distilled vinegar shall be free from coloring matter added during or after distillation and from color other from that imparted to it by distillation. And all fermented vinegar not distilled shall contain not less than one and three-fourths per cent, by weight, upon full evaporation (at the temperature of boiling water) of solids, contained in the fruit or grain from which said vinegar is fermented, and said vinegar shall contain not less than two and a half tenths of one per cent ash or mineral matter, the same being the product of the material from which said vinegar is manufactured. And all vinegar shall be made wholly from the fruit or grain from which it purports to be or is represented to be made, and shall contain no foreign substance and shall contain not less than four per cent, by weight, of absolute acetic acid."

It appears by the testimony that the defendant, a Michigan corporation doing business at Grand Rapids, on February 5, 1898, sold a barrel of vinegar to one John T. Owens of Benton Harbor. The sale is admitted. A sample of the vinegar was taken from this barrel and analyzed by the State Analyst, Mr. Fred H. Borradaile. The correctness of this analysis is not disputed. This analysis showed that the vinegar did not comply with the requirements of the statute in that it did not contain the amount of solids nor the amount of ash or mineral matter required.

The contentions made by counsel for defendant mostly relate to the validity of the act.

1. It is contended that the title to the act does not express any object; that the act was intended to prevent deception in the sale of vinegar or to prevent adulteration of vinegar, but that no such object is expressed in the title; and that the act is therefore in conflict with section 20 of article 4, of the constitution of this State, which provides that: "No law shall embrace more than one object, which shall be expressed in its title."

We think this contention sufficiently answered by what was said by this court in Soukup v. Van Dyke, 109 Mich. 681. There the title was: "An act relative to justices' courts in the city of Grand Rapids." It was said: "The title is sufficient if it fairly and reasonably announces the object and that is a single one. If this requirement be observed, the legislature must determine for itself how broad and comprehensive shall be the object of a statute and how much particularity shall be employed in the title in defining it."

In People v. Kelly, 99 Mich. 82, the title under discussion was: "An act relative to disorderly persons, and to repeal," etc.

See also:

State v. County Judges, 2 Iowa, 280.
McAunich v. The Miss. & Mo. R. R. Co., 20 Iowa, 342.

2. Counsel contend that the complaint being drawn under section two of this act, no conviction can follow; that if any violation of the law be found, it is of section one and not of section two of the act; that, therefore, the complaint was drawn under the wrong section.

This contention cannot be sustained. It is plain from the reading of these sections that the legislature intended that all fermented vinegar should come up to the required standard, whether made from fruit or grain.

3. The defendant contends that the act is unreasonable and therefore void as beyond the police power of the State, in that the test for cider vinegar in regard to solids is arbitrary, unscientific and not calculated to accomplish the end sought by the legislature, viz.: To protect the public health against spurious vinegar; that such test is no test, because:

a. Said solids and ash are indifferent ingredients of vinegar from a hygienic stand point.

b. Their comparative absence or presence is not an essential ingredient of pure apple cider vinegar.

c. A vinegar can be manufactured which will satisfy the requirements of the statute and yet contain no materials from apples or the product of apples.

d. A pure apple cider vinegar is frequently made which is below the requirements of the statute in solids and ash.

e. The less proportion of solids is a proof of greater purity in the vinegar and of its better keeping qualities.

These questions might very properly be addressed to the legislature, but are matters with which the court has nothing to do. It is not a part of the functions of the court to investigate the facts entering into questions of public policy merely. Under our system that power is lodged in the legislative branch of the government. It belongs to that branch to determine primarily what measures are appropriate or needful for the protection of the public morals, the public health or the public safety.

Barton v. McWhinney, 85 Ind., 481.
Mugler v. Kansas, 123 U. S., 660.
Powell v. Pennsylvania, 127 U. S., 685.

In People v. Snowberger, 113 Mich. 92, it was said by this court: "The act may work hardship in many cases, but that question is one to be addressed to the legislature and not to the courts."

The question of the reasonableness of the acts found in many states relative to the sale of milk below a certain standard has been frequently raised in the courts, and the acts upheld.

In Com. v. Evans, 132 Mass. 11, the court passing upon such a statute said: "The intention of the legislature and the practical operation of this section in connection with the third section is to provide that it shall be unlawful to sell milk containing less than thirteen per centum of milk solids. This belongs to the class of police regulations designated to prevent frauds and to protect the health of the people, which it is within the constitutional power of the legislature to enact."

In State v. Smyth, 14 R. I. 100, the court said: "It was the purpose of the statute to prohibit, not only the dealing in milk which had been adulterated, but also in milk of such inferior quality as to fall below the standard named in section three. It is equally a fraud on the buyer, whether the milk which he buys was originally good and has been deteriorated by the addition of water or whether in its natural state it is so poor that it contains the same proportion of water as that which has been adulterated.' See also:

State v. Newton, 45 N. J. L., 469.
Bertholf v. O'Reilly, 74 N. Y., 509.
State v. Campbell, 64 N. H., 403.
10 Am. St. Rep. 419.

But counsel contend that the reasonableness of this act is a question of fact for the jury to determine from the expert chemical evidence.

This question is neither for the court nor the jury to determine. In People v. Clipperly, 101 N. Y. 634, that very question was discussed and decided adversely to the claim here. It was said: "The defendant takes the broader ground that the legislature cannot under the constitution prohibit the sale of milk drawn from healthy cows which in its natural state falls below standard fixed by the act, unless such milk, or the articles made from it, are in fact unwholesome or dangerous to public health. How is that question of fact to be determined? The court cannot take judicial notice whether milk below the standard is or is not unwholesome or dangerous to public health. Is that to be a question for the jury? If so, the court must charge a jury in each case that if they find milk below that standard to be unwholesome, then the statute is constitutional; if they find it to be wholesome, then the statute is unconstitutional. Evidently a constitutional question cannot be settled, or rather, unsettled in that way. The constitutionality would vary with the varying judgments of juries."

In the emery wheel case before us, in People v. Smith, 108 Mich., p. 534, a somewhat similar question was discussed. It was said: "If the courts find the plain provisions of the constitution violated, or if it can be said that the act is not within the rule of necessity in view of facts of which judicial notice may be taken, then the act must fall; otherwise it should stand."

See also:

People v. Girard, 145 N. Y., 109.
(45 Am. St. Rep. 595.)

4. Counsel also contend that defendant was not allowed, nor could it obtain, a sample of the vinegar in question for analysis, and was deprived of the right to produce evidence as to the amount of solids in the vinegar; and was thus deprived of property without due process of law.

The record shows that the defendant was not prevented from getting a sample of the vinegar by any person interested in the prosecution of the suit. The record shows that the only effort it made to get such sample was a letter written to Mr. Owens who had bought and paid for the vinegar, requesting him to return it, to which the defendant received no reply, and it does not appear that Mr. Owens had any of the vinegar left at that time. No sample was left with the defendant by the prosecution; nor was this necessary.

Com. v. Coleman, 157 Mass., 460.

5. This statute forbids the manufacture and sale of vinegar not in compliance therewith; and persons manufacturing or selling vinegar below the standard do so at their peril. It is no defense that the person

so manufacturing or selling vinegar below the standard has no knowledge that it is not within the standard prescribed.

People v. Snowberger, 113 Mich., 86; 71 N. W. R., 497.

We have examined the other questions raised, but do not deem it necessary to discuss them. They relate mostly to offers of testimony which the court below ruled out; and, we think, properly.

The testimony was uncontradicted that the vinegar sold was not in compliance with the statute. The sale was admitted.

The court was not in error in directing the verdict. The conviction must be affirmed.

Grant, C. J., did not sit. The other justices concurred.

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## PEOPLE v. DETTENTHALER.

## GROSVENOR v. JACKSON CIRCUIT JUDGE.

(Opinions filed December 6, 1898.)

**Constitutional Law—Passage of Act Without Enactment Clause—Constitutional Provision Mandatory—Addition of Clause by Governor—Act 76, Laws of 1897, Invalid.**

1. **The provision in the Michigan State constitution, found in Sec. 48 of Art. IV, that all laws should be styled, "The People of the State of Michigan enact," is mandatory and the passage of an act without the enactment clause renders the act invalid.**
2. **The addition of the enacting clause by the Governor before affixing his signature will not render the law valid which was passed without an enactment clause.**
3. **Act No. 76, Laws of 1897, being "An act to prevent deception in the manufacture and sale of imitation butter" held to be invalid because of the passage of the act without an enactment clause was not rendered valid by the addition of such clause by the Governor before affixing his signature to the act.**

Error to the superior court of Grand Rapids; Edwin A. Burlingame, judge.

Exceptions taken by Frank J. Dettenthaler from a conviction of a violation of the pure food law.—Reversed and no new trial.

Frank D. Rodgers, Prosecuting Attorney, (Rodgers, McDonald & Corwin of counsel, for the people.

Rood & Hindman and E. F. Sweet, for respondent.

Certiorari by Elliot O. Grosvenor, Dairy and Food Commissioner, to review the action of the Jackson circuit judge in denying a mandamus. Affirmed.

John G. Hawley and Benn M. Corwin, for relator.

Rood & Hindman and E. F. Sweet, for respondent.

Hooker, J.: These cases involve the validity of Act No. 76, Public Acts, 1897, which is as follows:

"An act to prevent deception in the manufacture and sale of imitation butter."

Section 1. The People of the State of Michigan enact, That no person, by himself or his agents, or servants, shall render or manufacture, sell, offer for sale, expose for sale, or have in his possession with intent to sell, any article, product or compound made wholly or in part out of any fat, oil or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, which shall be in imitation of yellow butter produced from pure unadulterated milk or cream from the same: Provided, That nothing in this act shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form, and in such manner as will advise the consumer of its real character, free from coloration or ingredient, that causes it to look like butter.

Sec. 2. Whoever violates any of the provisions of section one (1) of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty dollars, nor more than five, hundred dollars, and the costs of prosecution, or by imprisonment in the county jail, or State House of Correction and Reformatory at Ionia, for not less than six months nor more than three years, or by both such fine and imprisonment in the discretion of the court for each and every offense.

Approved April 15, 1897.

The evidence in the first entitled cause shows that the defendant was convicted of the alleged offense of selling oleomargarine in contravention of this act.

In the other a complaint was made of a similar act to a justice, who refused to issue the warrant, and on application the circuit court denied a mandamous to compel it. The cases raise substantially the same questions, and were argued, and will be considered together. The validity of the law is questioned. The record shows that this was a senate bill and passed the senate without the constitutional enacting clause. The records of the house show that the bill was reported by the committee on agriculture and the committee of the whole, without amendment and with the recommendation that it be passed. Under the head of "third reading of the bills upon passage," the record of the house shows that "pending the third reading of the bill, Mr. Chamberlain moved that the bill be recommitted to the committee of the whole, which motion did not prevail. The bill having been read a third time, and the question being upon its passage pending the taking of the vote, Mr. Graham demanded the previous question. The demand was seconded. The question being, 'Shall the main question be now put?' The same was ordered. The bill was then passed, a majority of all the members elect voting therefor, by yeas and nays, as follows: * * * yeas 56, nays 19." As this is the only time the bill was before the house, we must find that the bill passed the house without an enacting clause, unless the contrary can be shown by other evidence. Counsel undertook to show that it was amended in this particular, by the records of the senate, and the testimony of the clerk of the house. The evidence is in brief, that previous to the passage of the bill in the house the clerk noticed the absence of the enacting clause, and brought it to the attention of the house, and said that he would enter one, and accordingly wrote the words in the original bill, i. e., the one which was then before the house. He did not testify that the house took any action upon it, or that any record was made of it.

The senate record shows that the bill was subsequently returned to the senate, accompanied by a letter from the clerk of the house, reading as follows:

"House of Representatives,
"Lansing, April 7, 1897.

"To the President of the Senate:

"Sir—I am instructed by the House to return to the Senate the following bill: Senate bill No. 6, file No. 24, entitled

"'A bill to prevent deception in the manufacture and sale of imitation butter' and to inform the Senate that the House has amended the same as follows: By inserting in line 1, Section 1, after the words 'Section 1,' the words 'The People of the State of Michigan enact.'

"Very respectfully,
"LEWIS M. MILLER,
"Clerk of the House of Representatives.

"In the passage of which, as thus amended, the House has concurred by a majority vote of all the members elect."

It further appears that the senate concurred in such amendment.

We must determine, therefore, whether the house is shown to have amended the bill by inserting an enacting clause and if not whether the law is valid without it.

The most that can be claimed is that there is oral testimony, that the clerk announced its absence and stated that he would supply it. Inferentially perhaps we may say that there was no objection made, but the evidence is silent as to what, if anything, occurred. There is nothing but this inference of silence which imports acquiescence in the amendment. There is nothing to show definite action by the house which alone had power to amend the bill before it. So that if the clause is essential to the validity of the act we need not discuss the propriety of admitting parol evidence to prove an amendment which should be shown by the record if one was authorized.

See Attorney General v. Rice, 64 Mich., 391.
Hart v. McElroy, 72 Mich., 446.
Sackrider v. Supervisors, 79 Mich., 66.

Is the constitutional enacting clause a requisite to a valid law? This must depend upon whether the constitutional provision is to be considered a mandatory provision or directory merely.

See Constitution, Art. IV., Sec. 48.

Among the authorities cited by the relator in support of his contention, is that of Swann v. Buck, 40 Miss. 268. The constitutional provision is similar to ours, and it was held that a substantial compliance was sufficient. In that case the style of the resolution was: "Resolved by the legislature of the State of Mississippi." The court was unable to discover a previous judicial decision of the question, but quoted Mr. Cushing to the effect that the prescribed "form must be strictly pursued, and that no equivalent language will be sufficient," and while declining to accept his rule said: "It is necessary that every law should show on its face the authority by which it is adopted, and promulgated, and that it should clearly appear that it is intended by the legislative power that enacts it that it should take effect as a law. These conditions being fulfilled all that is absolutely necessary is expressed. The word 'resolved' is as potent to declare the legislative will, as the word 'enacted.'"

The case of McPherson v. Leonard, 29 Md. 377, held that the provi-

sion of the constitution of Maryland was directory, and that the omission of the words, "by the general assembly of Maryland," did not render the law invalid. The question appears to have been treated as a new one.

The case of Cape Girardeau v. Riley, 52 Mo. 427, follows the Maryland case, in holding the provision directory; the court saying that after diligent search, no case holding to the contrary had been found. In this case, like the one before us, the entire enacting clause was wanting. In this connection we may add that previous decisions of the same court, holding the provision that writs should run in the name of the state, was directory, were given weight. In our State a contrary holding will be found.

See Forbes v. Darling, 94 Mich., 621.

There are, however, cases which take a contrary view of the law, and adhere to the doctrine asserted by Mr. Cushing, and the late Mr. Justice Cooley, in his work on constitutional limitations, 6 Ed., p. 93, viz.:

"But the courts tread upon very dangerous ground when they venture to apply the rules which distinguish directory and mandatory statutes to the provisions of a constitution. Constitutions do not usually undertake to prescribe mere rules of proceeding, except when such rules are looked upon as essential to the thing to be done; and they must then be regarded in the light of limitations upon the power to be exercised. It is the province of an instrument of this solemn and permanent character to establish those fundamental maxims and fix those unvarying rules by which all departments of the government must at all times shape their conduct, and if it descends to prescribing mere rules of order in unessential matters, it is lowering the proper dignity of such an instrument, and usurping the proper province of ordinary legislation. We are not, therefore, to expect to find in a constitutional provision which the people, in adopting it, have not regarded as of high importance, and worthy to be embraced in an instrument, which, for a time at least, is to control alike the government and the governed, and to form a standard by which is to be measured the power which can be exercised as well by the delegate as by the sovereign people themselves. If directions are given respecting the times or modes of proceeding in which a power should be exercised, there is at least a strong presumption that the people designed it should be exercised, in that time and mode only; and we impute to the people a want of due appreciation of the purpose and proper province of such an instrument, when we infer that such directions are given to any other end. Especially when, as has already been said, it is but fair to presume that the people in their constitution have expressed themselves in careful and measured terms, corresponding with the immense importance of the powers delegated, and with a view to leave as little as possible to implication."

There are some cases, however, where the doctrine of directory statutes has been applied to constitutional provisions but they are so plainly at variance with the weight of authority upon the precise points considered that we feel warranted in saying that the judicial decisions as they now stand do not sanction the application.

The question arose in Washington territory over a law fixing the seat of government, and the opinion of Cushing was quoted and followed. 1 Wash. Ter. 116. The case of Nevada v. Rogers, 10 Nevada 250, decided in 1875, did the same. An extended discussion of the subject will be found in that case, in support of the proposition that the language of the constitution should be literally followed.

The opinion concludes with the following pertinent and emphatic language:

"Our constitution expressly provides that the enacting clause of every law shall be 'The People of the State of Nevada, represented in senate and assembly, do enact as follows.' This language is susceptible of but one interpretation. There is no doubtful meaning as to the intention. It is, in our judgment, an imperative mandate of the people in their sovereign capacity to the legislature, requiring that all laws to be binding upon them shall, upon their face, express the authority by which they were enacted, and as this act comes to us without such authority appearing upon its face, it is not a law."

The case of the State v. Patterson, 98 N. C. 662, is strong in its condemnation of the practice of treating constitutional requirements as directory. The case of Powell v. Jackson, 51 Mich. 130, is not in point, as the bill was duly and seasonably amended, if we may accept the statement of the briefs of the counsel and the syllabus.

The trend of the weight of the authority is in our opinion against the relator's contention.

It is urged with some plausibility that the insertion of this provision previous to the signature by the Governor is a sufficient compliance with the constitution, from which we understand the claim to be made that although the enacting clause was wanting when the bill came to the Governor it might have been supplied by him. But it is thought that this proposition is tenable only upon the assumption that the constitutional provision is directory merely. The Governor has no power to make laws. The legislative power is in no part vested in him, being by Sec. 1, Article IV, of the constitution, vested in the senate and house of representatives. It is not the design of the constitution that he should legislate. His office is a check upon the legislature and he may compel a reconsideration of a bill by seasonably returning it to the appropriate house with his objections to it, and when the legislature has adjourned his neglect to sign it prevents it from becoming a law, but he has not the slighest power in framing the law. Indeed, it is a fundamental principal in American constitutions that the executive shall not make laws. The following language from the opinion in the case of State of Nevada v. Rogers, 10 Neb. 250, is apropos to this subject:

"Without the concurrence of the senate the people have no power to enact any law. Every person at all familiar with the practice of legislative bodies is aware that one of the most common methods adopted to kill a bill and prevent its becoming a law, is for a member to move to strike out the enacting clause. If such motion is carried the bill is lost. Can it be seriously contended that such a bill, with it head cut off, could thereafter by any legislative action become a law? Certainly not. The certificates of the proper officers of the senate and assembly, that such an act was passed in their respective houses, do not, and could not impart vitality to any act which, upon its face, failed to express the authority by which it was enacted."

This being so, the only justification for the insertion of the enacting clause by the Governor is to be found in the assumption that it is a clerical omission of an unimportant matter and it might as well be held that one of the houses, or a clerk, or even the printer of the laws, might make the correction, as that the Governor might do it.

Some of the states have sustained laws without enacting clauses, but we do not know of one that has made their validity depend upon the unauthorized action of some officer or person. They have preferred to rest their action upon the well recognized distinction between mandatory and directory provisions. If the provision is mandatory that the law

shall have a prescribed style and the making of laws is confined to the legislative branch of the government, it cannot be consistently held that omissions of essential parts of a law may be supplied and corrections made by persons without authority; and the public necessities should be much greater than in the present case, before such a proposition should be seriously considered. If on the other hand there is warrant for treating the provision as directory, a much less dangerous precedent is established. But as has been shown, the weight of authority forbids it and in our opinion it will be an unfortunate day for constitutional rights when courts begin the insidious process of undermining constitutions by holding unambiguous provisions and limitations to be directory merely, to be disregarded at pleasure. In the present case it will be much better that the legislature shall correct its mistake, than that the courts shall sanction the irregular correction.

We are therefore constrained to hold that the law under discussion is void, and in the certiorari case the order is affirmed, in that of Dettenthaler the conviction is reversed and no new trial ordered. The other justices concurred.

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## GROSVENOR v. DUFFY.

(Opinion filed September 18, 1899.)

**Pure Food Law—Sale of Oleomargarine Colored to Imitate Butter—Constitutionality of Act.**

**The sale of oleomargarine colored with a harmless substance to imitate June butter, but which is sold and purchased as oleomargarine, is not in violation of section 3 of Act 118 of the Public Acts of 1897, being an act to prohibit and prevent adulteration, fraud and deception in the manufacture and sale of articles of food and drink.**

**Certiorari to review the action of the Washtenaw circuit judge in refusing the application of Elliot O. Grosvenor, Dairy and Food Commissioner, for mandamus to compel John L. Duffy, justice of the peace, to issue a warrant. Affirmed.**

Smedley & Corwin, for relator.

John J. Speed and J. P. Lee, for respondent.

The relator presented to a justice of the peace a complaint in writing, charging that "Casper Rinsey did unlawfully offer and expose for sale, and did unlawfully sell and deliver to said Elliot O. Grosvenor, a large quantity, to wit, one pound of oleomargarine, which was then and there an article of food intended to be eaten by man, and which was then and there adulterated within the meaning of Act No. 193 of the Public Acts of Michigan for the year 1895, as amended by Act No. 118 of the Public Acts of Michigan for the year 1897, in this, to wit: that said oleomargarine was then and there an imitation of another article of food, to wit: an imitation of a rich June butter; and said oleomargarine had been and was then and there colored, whereby inferiority was concealed and by which means it was made to appear better and of greater value than it

really was, to wit, in this: That it was thereby made to appear like butter of a grade which was then and there of a greater value than the said oleomargarine; that the said oleomargarine was labeled 'oleomargarine' and stamped with the seller's name; and that the tub and wrapper which contained the same bore the name and address of the manufacturer and was distinctly labeled oleomargarine."

"Said complainant on his oath aforesaid, further says, that he called for oleomargarine, and that the said oleomargarine was sold to him as oleomargarine the same as to an ordinary customer, freely and without objection, and that for this reason he did not take the steps required by section 6, Act No. 154 of the Public Acts of Michigan for the year 1897."

The justice refused to entertain the complaint and issue a warrant, whereupon the relator applied to the circuit court for Washtenaw county for the writ of mandamus to compel the justice to issue a warrant and proceed to hear the case. The circuit court refused the writ and the case is brought to this court by certiorari for review.

Grant, C. J. (after stating the facts). The title of the act reads "An act to prohibit and prevent the adulteration, fraud and deception in the manufacture and sale of articles of food and drink." Sec. 3, as amended by Act No. 118, Public Acts 1897, so far as it applies to this case, reads:

"An article shall be deemed to be adulterated within the meaning of this act: * * *

"Fourth—If it is an imitation of, or sold under the name of another article. * * *

"Sixth—If it is colored, coated, polished or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is.

"Seventh—If it contains any added substance or ingredient which is poisonous or injurious to health: Provided, That nothing in this act shall prevent the coloring of pure butter: and provided further, That the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food, if each and every package sold or offered for sale, bear the name and address of the manufacturer and be distinctly labeled under its own distinctive name, and in a manner so as to plainly and correctly show that it is a mixture or compound, and is not in violation with definition fourth and seventh of this section."

It is not claimed that the sale made by Rinsey violates subdivision seven. The act charged in the complaint is neither adulteration, fraud nor deception under any definition of these words to be found in any dictionary. Adulteration is "the act of corrupting or debasing, the act of mixing something impure or spurious with something pure or genuine, or an inferior article with a superior one of the same kind."

Bouv., L. D., 126.
Century Dictionary.

Counsel do not urge that it comes within the word "fraud" or "deceit." Neither is it urged that the article is made to appear of greater value than it really is. It is not claimed that the coloring matter used is in the least deleterious. The law permits its use to color butter.

Counsel rely upon People v. Snowberger, 113 Mich. 86. That case is not in point. The gravamen of the offense there was that the article of food was damaged, inferior, its inferiority concealed, and it was made to appear of greater value than it really was.

This brings us to the only question we need to determine, viz.: Is the title to the act broad enough to include the sale complained of? would any person reading the title to the bill in the legislative journals, or elsewhere, suppose that the bill would make criminal an act which in itself was entirely harmless, honest, innocent and contained no element of wrong-doing? Or that it would change the well known definition of a word so as to include within it things which were in no sense akin to it and which could only be included in it by the most arbitrary legislative enactments? Would a manufacturer of, or dealer in butter or oleomargarine, be notified by the title that the harmless coloring of either was not only to be prohibited but to be punished by fine or imprisonment or both? There can be but one answer to these questions. When the legislature attempts to change definitions and to make acts criminal which per se are innocent and contain no element of wrong, there must be something in the title to show such purpose or object under Sec. 20, Art. 4 of the constitution. The title contains not even an intimation that an entirely innocent act is to be made a crime. It follows that this part of the act is void.

Bissel v. Wayne Probate Judge, 58 Mich., 237.
Northwestern M'fg Co. v. Wayne Circuit Judge, Id., 381.
McKellar v. Detroit, 57 Mich., 158.

This statute is assailed as unconstitutional upon other grounds. This disposal of the case renders it unnecessary to discuss them. How far the legislature may go, under the police power inherent in the State in prohibiting and punishing acts which in themselves are perfectly harmless, would be an interesting subject of inquiry, but as it is not necessary to a disposal of the case we decline to enter upon it.

Judgment affirmed. The other justices concurred.

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## PEOPLE v. SKILLMAN.

(Opinion filed March 4, 1902.)

Pure Food Law—Section 5022 C. L. Construed—Action Against Traveling Salesman.

A traveling salesman for a wholesale grocery firm, residing out of the State, took an order in this State for pure fruit jelly and forwarded the order to his employers. The order was filled with imitation fruit jelly. Information was filed against the salesman under section 5022 C. L., regulating the manufacture and sale of imitation fruit jellies. *Held*, That respondent was not guilty of violating the terms of the statute.

Error to the circuit court for Muskegon County. Fred J. Russell, judge.

Appeal of John Skillman from a conviction under the pure food law. New trial ordered.

Chas. B. Cross, Prosecuting Attorney, for the people.

Elliot O. Grosvenor and Smedley & Corwin, for respondent.

Moore, J.: An information was filed against the respondent which, omitting the formal parts, read as follows: "That one John Skillman heretofore, to wit, on the sixteenth day of September, A. D. 1901, at the city of Muskegon, in the county of Muskegon aforesaid, did unlawfully offer for sale and did sell to Albert Towle a large quantity, to wit: a certain compound under the name of Quince Jelly which was then and there adulterated within the meaning of the Act No. 193 of the Public Acts of the State of Michigan of the year 1895, as amended by Act No. 118 of the Public Acts of the State of Michigan of the year 1897, as amended by Act No. 117 of the Public Acts of the State of Michigan of the year 1899, in this to wit: That said compound was then and there made and composed in part of glucose, starch and other substances, and was then and there colored in imitation of fruit jelly contrary to the form of the statute."

After the testimony was all in, a motion was made asking the judge, for various reasons, to direct a verdict in favor of respondent. This motion was overruled. The case was submitted to the jury which returned a verdict of guilty.

A great many errors are assigned. We think some of them which we shall discuss are well taken, but as the case if ever tried again, will not present the same questions now presented by counsel we deem it unnecessary to pass upon all the questions argued by them in the briefs.

To sustain the case of the people testimony in substance as follows was introduced: It was shown the respondent had for some years been a traveling salesman in the employ of Reid, Murdock & Company of Chicago, that he solicited an order from Mr. Towle, a grocer in Muskegon, that Mr. Towle gave him an order for a case of assorted pure fruit jelly. Mr. Skillman did not have the goods with him, but reduced the order to writing in the presence of Mr. Towle at his store, and for warded it to the house in Chicago. It is as follows:

"Reid, Murdock & Co., Chicago,
Sept. 12, 1901.

Name: Albert Towle.
Town: Muskegon.
State: Michigan.
Ship by Barry Line.
Salesman: Skillman.

1 c P. F. Jelly Med. Asst..... 100
1 c P. F. Jelly Med. Currant..... 100
60 days."

"1 c. P. F. Jelly Med. Asst." was explained to mean one case pure fruit medium size assorted glasses. Mr. Towle testified Mr. Skillman claimed it was pure fruit jelly for which he took the order, and that was what he intended to buy. It was not shown that respondent had anything further to do with the transaction than as above stated. Later a case of goods was received from Reid, Murdock & Company and testimony was given tending to show that a tumbler of this jelly was sold to Mr. Bennett, inspector of the Dairy and Food Department of Michi-

gan and by him forwarded to the State Analyst, where it is claimed upon analysis it was shown to be a mixture of fruit juice, glucose, starch and coloring matter. Upon the cross examination of Mr. Towle the following occurred:

"Q. Did you give Mr. Skillman more than one order for fruit jelly about this time? A. Well, he had two or three orders, I think, two at least.

"Q. Two orders? A. One of them might have been ordered by mail.

"Q. Now you received two consignments of fruit jelly from the orders you had given to Mr. Skillman? A. I think so, yes, sir.

"Q. Upon which one of these orders did you receive this particular tumbler of jelly that you afterwards sold to Mr. Bennett? A. I couldn't say. The one that he bought was out of that order I think. (Witness pointing to order exhibited.)"

The defense claimed that the label "pure fruit jelly" placed upon the tumbler analyzed was put there by mistake. It was their claim that Reid, Murdock & Company dealt in two kinds of jelly, those made out of pure fruit and those made in imitation of pure fruit, and that when the imitation was sold in Michigan and certain other states their instructions were to label them "imitation," and that these instructions were furnished in writing to their agents, including the respondent, and they offered testimony tending to prove this claim. The written instructions were also offered in evidence, but with the testimony offered were excluded by the court.

Among other requests offered by the respondent was the following:

"Under the undisputed evidence in this case there is nothing to show that the respondent offered to sell any jelly in violation of any statute of this State, but, on the contrary, it is shown that respondent offered to sell strictly pure fruit jelly and sent such an order to Reid, Murdock & Company of Chicago, Illinois, and the charge in the information for selling and offering to sell adulterated jelly is not sustained by the evidence, and your verdict should be not guilty."

The judge refused to give this request, but charged the jury, "It is recognized by the legislators and is a matter of common knowledge that many of the wholesalers that are doing business in Michigan are not residents of this State, so the legislature saw fit to make a law where a man solicited the sale of pure jellies, took an order for the sale of pure jellies, and in response to that order and offer, a different class of goods was furnished, that the party should be guilty of violating this particular law. In other words, instead of that order or offer and the furnishing of goods delivered to the party by a party who might be a non-resident of the State, that it should relate to the man who actually made the offer, the man who actually took the order for the furnishing of this particular article. The people claim that this is the matter in which this defendant here is liable."

This statement of the law is sought to be justified by People v. Snowberger, 113 Mich. 86, and People v. Grocer Co., 118 Mich. 604, 71 N. W. 497, 67 Am. St. Rep. 449, 77 N. W. 315. A reference to these cases will show that the respondent in each of them admitted making the sale of the goods. In this case the respondent denies that he sold any goods coming within the provisions of the statute. Giving the only interpretation to the testimony as it appears in the record which can be fairly given

to it shows Mr. Towle was solicited to give an order for pure fruit jelly. He gave such an order. It was reduced to writing and in the writing the jelly was described as pure fruit jelly. As before stated the only connection of the respondent with the transaction as shown by the record is the taking of an order for an article not within the terms of the statute and forwarding it. This does not constitute an offense. It might as well be urged that if a traveling salesman takes an order for Michigan beet sugar and forwards a written order for such sugar, and if the house, instead of filling the order as written, sends glucose with a label upon the package containing it calling it Michigan beet sugar the salesman would be guilty of an offense. This we do not understand to be the law. Upon the case as made the circuit judge should have directed a verdict of not guilty. People v. Howard, 50 Mich. 242, 15 N. W., 101.

The verdict is set aside and a new trial ordered.

Long, J., did not sit. The other justices concurred.

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## THE PEOPLE v. MORSE.

(Opinion filed June 3, 1902.)

Pure Food Law—Sales by Agents—Criminal Responsibility for Acts of Principal.

1. A traveling salesman who in good faith takes an order for "pure pepper," which is filled by his principal with impure pepper, is not guilty of a violation of Public Acts 1895, No. 193, forbidding the sale of impure foods.
2. Public Acts 1895, No. 193 (Pure Food Laws) Sec. 17, providing that the taking of an order for future delivery of any of the articles covered by the "act shall be deemed a sale, within the meaning of the act," does not make an agent absolutely responsible for the acts of his principal in filling the orders taken by such agent, and an order by the agent which is filled by the principal as an entirety may be, under the act, a sale of impure food, as to the principal, and yet not such as to the agent.

Error to circuit court, Muskegon county; Fred J. Russell, judge.

John W. Morse was convicted of a violation of the pure food law, and he brings error. Reversed.

Underwood & Umlor, for appellant.

Chas. B. Cross, Prosecuting Attorney, and George S. Lovelace, Assistant Prosecuting Attorney, for the people.

Hooker, J.: The brief filed on behalf of the people states that the case is similar to that of The People v. Skillman, 8 Detroit Legal News, 1090, 89 N. W. 330, and in effect concedes that the case must be reversed if we adhere to our former decision.

The defendant took an order for some pepper, as and for pure pepper, to be shipped to a dealer in Muskegon, by defendant's principal, a wholesaler in Chicago. The pepper when sent was not pure.

It is insisted that the Skillman case is at variance with the weight of

authority elsewhere, and contrary to our own cases, in which it is said that we have held that a guilty intent on the part of a vendor, is not essential to an offense, under the pure food law (Public Acts 1895, No. 193). It is further said that in the decision in the Skillman case, section seventeen of the act must have been overlooked or considered unconstitutional.

The transaction in which the order was taken did not involve an immediate delivery of pepper, then and there present. It is not shown that the sample, if there was one, was the same as the pepper subsequently sent, or that it was in the least impure. If it be conceded that the agent acted in good faith, and we understand that it is not questioned, he took an order for pure goods, and in doing that certainly committed no offense. It is now urged that the exigencies of the enforcement of this law are such that we should hold that this innocent and lawful action, may be made a crime by the subsequent act of the principal, either intentional or inadvertent, in departing from, instead of performing the contract which his agent had innocently made. We think this is not so, and we are also of the opinion that this does not necessarily do violence to section seventeen. This transaction, as an entirety, may have been a sale of impure pepper under the statute as to the principal, and not as to the agent. If the order had been taken, with knowledge on the part of the agent of a practice to send impure pepper on such orders, a different question would be presented.

The judgment is reversed and a new trial ordered.

Long., J., did not sit. The other justices concurred.

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## PEOPLE v. ROTTER.

(Opinion filed June 24, 1902.)

Food—Oleomargarine Act—Constitutional Law—Statutes—Title—Object.

1. Public Acts 1901, No. 22, entitled "An act to prevent deception in the manufacture and sale of imitation butter," which in addition to forbidding sale of imitation butter, prohibits sales of colored oleomargarine, is not, on that account, open to the objection that the object is not expressed in the title, as required by Const. Art. 4, Sec. 20.
2. The act is not in contravention of the fourteenth amendment of the federal constitution.
3. The act is a valid exercise of the police power.

Error to circuit court, Emmet county; Frank Shepard, judge.

George W. Rotter was convicted of selling colored oleomargarine, and brings error. Affirmed.

Smedley & Corwin, Sears, Meagher & Whitney (James F. Meagher and Kay Wood, of counsel), for appellant.

Horace M. Oren, Attorney General, and Matthew F. Guinon, Prosecuting Attorney, for the people.

Hooker, C. J.: At its last session, the legislature passed an act under the title "an act to prevent deception in the manufacture and sale of imitation butter." Public Acts 1901, No. 22.

Section 1 of said act provides that:

"No person, by himself or his agents or servants, shall render or manufacture, sell, offer for sale, expose for sale, or have in his possession with intent to sell, any article, product or compound made wholly or in part out of any fat, oil or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, which shall be in imitation of yellow butter produced from pure unadulterated milk or cream of the same: Provided, That nothing in this act shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form, and in such manner as will advise the consumer of its real character, free from coloration or ingredient that causes it to look like butter."

Section 2 prescribes a penalty for the violation of the act.

The defendant was a grocer in Emmet county, and is shown to have sold a package of oleomargarine, which by an analysis was proven to have contained artificial coloring matter, and that said oleomargarine was not made wholly from unadulterated milk or cream from the same, and that it was made in imitation of yellow butter, produced from unadulterated milk or cream from the same. The court was asked to direct a verdict of not guilty upon the grounds:

1st. That the object of the act was not expressed in the title, as required by section 20 of article 4 of the constitution of this State;

2d. That the act violates the fourteenth amendment of the constitution of the United States, and article 6, section 32, of the constitution of this State;

3d. That it was not within the police power of the State.

The evidence conclusively shows that no deception was used in selling the oleomargarine, and there is nothing to indicate that there was any harmful ingredient therein, but that on the contrary there was not such ingredient. The defendant was convicted, and the case is here on exceptions before sentence.

It is contended that the title to the act indicates that the act was designed to prevent deception in the manufacture and sale of imitation butter, while the act attempts to go further and prevent all sales of such colored oleomargarine.

If oleomargarine colored yellow, closely resembles yellow butter, made from milk or cream, it cannot reasonably be said not to resemble or imitate yellow butter. Butter is a well known commodity. From time immemorial it has had but one origin, viz.: from the churning of milk or cream. Whatever may be said of the possibility of making a product from other compounds than milk or cream that shall closely resemble or be chemically identical with butter, the world has but one understanding of what is meant by the word "butter," and we must assume that such is the sense in which our legislature used the term. Compiled Laws, Sec. 50, Sub. 1.

A fair inference from this statute is that the legislature undertook to prevent deception, by preventing the sale of any yellow oleomargarine, and it undertook to accomplish this by the most effective means, viz.: by prohibiting the coloring of oleomargarine yellow, thereby avoiding the embarrassment which would otherwise arise from the necessity of

proving in each case, that deceit was used in selling it, as and for butter. We think this is fairly within the title, whatever must be said of the other points raised. We are referred to the case of N. W. Mfg. Co. v. Chambers, 58 Mich. 381, 25 N. W. 372, 55 Am. Rep. 693, as conclusive upon this question, in which case it is said that "all that could be done under such a title would be to prohibit and prevent sale of such articles under false pretenses." We are of the opinion that this language is too restrictive, and that it is at variance with the settled doctrine in this State, that any provision, naturally calculated to accomplish the object expressed in the title may be included in the act.

See:

Soukup v. Van Dyke, 109 Mich., 681.
People v. Worden Grocer Co., 118 Mich., 607.

The case cited was rightly disposed of upon another ground, and it is possible that the language above quoted should be considered a dictum. Moreover the cases are distinguishable for whereas, that act attempted to prevent all sales of imitation butter, and was therefore perhaps inconsistent with the title, which apparently contemplated lawful sales, the statute under consideration in the present case, does not prohibit sales of oleomargarine, which is not tainted with the prohibited ingredients.

It is unnecessary to discuss the other points at length for the reason that the uniform trend of judicial opinion is that such laws are valid.

State v. Meyers, 42 W. Va. 825; 35 L. R. A. 844.
New Hampshire v. Marshall, I. L. R. A. 51.
Powell v. Penna, 127 U. S. 678.
People v. Armsberg, 105 N. Y. 113.
Butler v. Chambers, 36 Minn. 69.
People v. Worden Grocer Co., 118 Mich. 604.
People v. Armsberg, 105 N. Y. 123.
State v. Crescent Creamery Co., 86 N. W. 107.
State v. Ball, 46 Atl. Rep. 50.
Commonwealth v. Van Dyke, 13 Pa. Sup. Ct. Rep. 484.
Commonwealth v. McCann, 14 Pa. Sup. Ct. Rep. 221.
Armour Packing Co. v. Snyder, 84 Fed. Rep. 136.
Cap. City Dairy Co. v. State, 22 Sup. Ct. Rep. 120.
Wright v. State, 41 Atl. Rep. 795.

We are of the opinion that the legislature had the power to pass this law, and its wisdom of policy is not for our consideration.

The judgment is affirmed and the court directed to sentence the defendant.

Long, J., did not sit. The other justices concurred.

## PEOPLE v. PHILLIPS.

(Opinion filed Sept. 17, 1902.)

Food Adulteration—Statutes—Oleomargarine—Yellow Butter.

1. The phrase "yellow butter," is used in Act No. 22, Acts 1901, making it an offense to sell or offer for sale oleomargarine colored in imitation of "yellow butter" made from pure milk or cream, of the same, means any butter produced from pure milk or cream thereof having a "perceptible shade" of yellow.

Error to circuit court, Kalamazoo county; John W. Adams, Judge.

John W. Phillips was convicted of selling oleomargarine, in violation of Act No. 22, Acts 1901, and he brings error. Affirmed.

Frank E. Knappen and E. M. Irish, for appellant.

Sheridan F. Master, Prosecuting Attorney, and Dallas Boudeman, for the people.

Moore, J.: The respondent was convicted of having on hand with intent to sell, and offering for sale oleomargarine, colored in imitation of yellow butter, contrary to the provisions of Act No. 22 of the legislature, passed at the session of 1901.

It is claimed by respondent this law is unconstitutional and is an invalid law. That question was decided in the very recent case of People v. Rotter, against the contention of respondent, and need not be discussed here. It is urged as a matter of defense, and we quote from the brief of counsel, "that the statute is only aimed against the imitation of a substance which the legislature recognizes as yellow butter, and

1. The court should take judicial notice that all butter with a trace of yellow in it is not the yellow butter of commerce.

2. That if this is not true as a proposition of judicial notice, and the court cannot know it, then the respondent should have been allowed to prove, if he could, that there was such a usage of commerce.

3. That the statute is vague and indefinite in not defining the elements of the statutory crime it attempts to carve out of an act innocent per se, in that it gives no standard for determining what the color of yellow butter is that is not to be imitated."

The trial judge charged the jury upon that branch of the case as follows:

"It is not necessary in this case for the people to have proved that the respondent himself colored the oleomargarine if you find beyond a reasonable doubt that it was colored. The offense is just as complete, so far as this is concerned, if the respondent purchased oleomargarine colored, as above indicated. The offense as above stated consists of having the oleomargarine colored as before indicated, in his possession, with intent to sell the same, or in exposing it for sale; and if the respondent sold it in the same condition as he bought it, there would be no defense in this case. The respondent, gentlemen of the jury, is not charged in this information with selling this article; and if you find beyond a reasonable doubt he sold it as claimed by the people in the testimony offered,

you may consider this fact on the question of whether respondent had or did not have the article in his possession for the purpose of selling it. And you must not consider it for any other purpose. If you find beyond a reasonable doubt that respondent did sell the article mentioned in the information to the parties claimed by the people, that would satisfy the statute upon the question of intent to sell. It is not necessary in this case to entitle the people to a conviction, that the oleomargarine should have been colored to represent any particular kind of yellow butter. That is, such yellow butter as the statute mentions, and as I have indicated to you the statute mentions. If the coloring was put into it, and by using such coloring the oleomargarine was in imitation of light yellow butter, such as the statute mentions, that is, yellow butter produced from pure, unadulterated milk or cream from the same, the offense is committed just the same, as if it had been colored to represent darker yellow butter. If you find it to have been oleomargarine and was colored in such a manner as to be in imitation of any kind of yellow butter, that would satisfy the statute upon the requirement of the question of color. Yellow butter I define to be any butter produced from pure, unadulterated milk or cream of the same having a yellow color.

"It is necessary in order for the jury to convict the respondent, for you to find beyond all reasonable doubt that the article in the package sold was colored in imitation of yellow butter produced from pure, unadulterated milk or cream of the same. If you find beyond a reasonable doubt under the testimony in this case that there was some coloring matter in this article, still if you find that there was not enough coloring matter in this article to cause it to look like yellow butter having a perceptible shade of yellow, said butter having been produced from unadulterated milk or cream from the same, then you must acquit. But if you find beyond a reasonable doubt there was coloring matter in said article and sufficient coloring matter in said article and sufficient coloring matter therein to make it look like yellow butter, having any perceptible shade of yellow, said butter having been made from unadulterated milk or cream from the same, that would be sufficient so far as the requirement of the statute upon the question of coloration is concerned."

We think this was a proper construction of the language used in the statute.

The conviction is affirmed and the case remanded for further proceedings.

Long, J., did not sit. The other justices concurred.

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## PEOPLE v. JENNINGS.

(Opinion filed April 7, 1903.)

Adulteration of Food—Omission of Ingredients—Coloring Matter—Remarks of Court.

1. There not having been incorporated in the pure food law of 1895 (Public Acts of 1895, p. 358, No. 193), any specific formula for the manufacture of lemon extract, it is proper to resort to the United States Pharmacopoeia formula to determine of what lemon extract consists.
2. The pure food law of 1895 (Public Acts 1895, p. 358, No. 193), is not intended to prevent manufacturers of articles of food from improving the same, so long as no infringement of the law or spirit of the act defining adulteration takes place.
3. The provisions of Comp. Laws, Sec. 5012, that an article shall be deemed adulterated, "second, if any inferior or cheaper substance or substances have been substituted wholly or in part for it; third, if any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it" —should be read together, and the provision first recited construed as pro-

hibiting the substitution for an essential ingredient of any cheaper or inferior substances.

4. Comp. Laws, Sec. 5012, declaring that an article shall be deemed adulterated, "sixth, if it is colored * * * whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is," does not preclude the use of coloring matter not injurious to health in any way.
5. It is improper for the court to refer to expert testimony as "boughten testimony."

Exceptions from circuit court, Muskegon county; Fred J. Russell, judge.

Charles W. Jennings was convicted of violating the pure food law, and brings exceptions. Reversed.

Charles A. Blair, Attorney General, and Charles B. Cross, Prosecuting Attorney, (Cross, Lovelace and Ross, of counsel), for the people.

Knappen, Kleinhans & Knappen and L. N. Keating, for defendant.

Montgomery, J. This is a prosecution under the Pure Food Law, so called. The defendant was convicted under an information charging him with selling a compound as a lemon extract which was adulterated within the meaning of Act No. 193, P. A. 1895, and was a compound in imitation of extract of lemon. The respondent was convicted and brings the case up on exceptions before sentence.

The evidence on the trial introduced by the defendant tended to show that lemon oil contains from three to ten per cent citral, so called, and upwards of ninety per cent of so called turpenes; that these turpenes represent the oil property; that they are in reality the oil itself freed from the citral; that citral is the principal flavoring and odor-bearing property of lemon oil; that the tendency of turpenes in the oil of lemon is to deteriorate or become rancid by long standing, and that because of this the extract of spirits of lemon in which turpenes appear in usual quantities become turpentiney, both in smell and taste, and that for this reason it is undesirable to have turpenes present; that the turpenes have a biting taste, easily developing a turpentine taste, not the flavor of the lemon fruit. There was also testimony tending to show that this fact created a demand for turpeneless oils and that turpeneless lemon oils had been manufactured and sold commercially for a considerable time.

On the part of the prosecution the testimony of the chemist of the Pure Food Department was to the effect that taking as a standard of extract of lemon the spirits of lemon as defined by the United States Pharmacopoeia formula that the extract produced by the respondent showed no lemon oil present. It further appears that spirits of lemon made according to the pharmacopoeia formula would contain from 25-100 to 35-100 of one per cent of citral. It also appeared that 30 per cent of alcohol appeared in the product made by respondent, and that according to the pharmacopoeia formula 80 per cent was used, and that it cost less to make the extract using but 30 per cent of alcohol than if 80 per cent was used. It was also shown that a trace of coal tar dye

was found in the extract made by respondent, but it was conceded that there was nothing whatever injurious in the extract as prepared by Mr. Jennings. The extract sold by respondent was made by what is known as the shaking out process, the purpose being to make an extract that contains no oil and as little alcohol as possible, a product that simply contains the flavoring properties of the lemon oil without the turpenes. This system has been employed by Mr. Jennings and by other manufacturers for the past three years; and it is claimed that all the elements and properties of lemon oil remained except the turpenes, and the testimony tended to show that the complete flavoring qualities are extracted by this process.

The circuit judge charged the jury as follows:

"In 1895 the Legislature of this State thought it wise to pass a law relative to the adulterations of food and food products. Perhaps there may have been some amendments since that time, but that was the foundation of the law. That law covers lemon extract as it covers all other products that are sold on the market. It seems at the time the law was passed and since that time there hasn't been—there isn't incorporated within that law any special formula for the manufacture of lemon extract. Now, we can hardly say, gentlemen of the jury, that at the time of the passage of that law that the legislature didn't have some recognized and defined standard by which these essences or extracts should be governed or controlled. I think it would be hardly fair to the legislature to claim that there wasn't a standard they had in their mind at that time, and for the purposes of this case I will instruct you gentlemen, that at that time and at this time this standard that appears here in the United States Pharmacopoeia is the standard recognized by the legislators of this State and the one to which—the one that is in force so far as it applies to the Pure Food Law of this State with reference to that particular product. And if this lemon extract is manufactured in conflict with that formula as I shall hereafter call your attention to it, and you should find from the evidence, why it would be your duty to convict the defendant here.

"By that formula it appears that it is necessary to have five per cent of lemon oil in the lemon extract and that lemon oil shall be cut by a sufficient quantity of alcohol to perform that act. Of course, you know that that means in common parlance it should dissolve the oil. In addition to that, as the evidence tends to show in this case, after those things are put together, the fluid, whatever it might be, would be nearly the color of water. As coloring there may be or should be five per cent of lemon rind, and those ingredients when added together would be lemon extract, and that, gentlemen, will be the standard as applied to the Pure Food Law of this State. Now gentlemen, I don't mean by that statement that lemon extract cannot be manufactured by any other process except by that to which I have called your attention. I don't mean that. It is the claim of the defendant here that he has discovered a process by which he can manufacture lemon extract containing all of the qualities that lemon extract manufactured according to that formula would possess and not have entirely all of the ingredients in the first instance that are provided in the formula. And as I view this case, gentlemen, that is one of the important propositions in connection with this case—that, and the question of coloring—in the judgment of the court is the case, and that all of the testimony in the case here revolves itself about those two propositions.

"It is the claim of the defendant, as I say, he has discovered a process by which he can produce in this lemon extract all the qualities that would be produced by adding alcohol and lemon oil together, and that manufacturing it by that means he produced it chemically by taking a larger quantity of lemon oil and extracting certain parts of it. Now, gentlemen, if you find and are satisfied by the evidence in this case that after this lemon extract was manufactured as defendant here claims he did manufacture it possesses all the qualities in strength and otherwise that it would possess if manufactured according to this formula, he is not guilty under this law. That is, he is not guilty of manufacturing an impure article, unless there are certain other articles that enter into the case

to which I call your attention. As I say, in the first instance, it is claimed that according to the formula it should be alcohol and five per cent of lemon oil. Now if by some other process he can manufacture from the lemon oil and alcohol a product that would contain all of the elements that these two elements would contain if so mixed, he would not be guilty so far that would be lemon extract except the color of it.

"It is conceded here by all parties in interest, I think, that the only object of the lemon peel is to produce coloring. But there is another element to which the prosecuting attorney has called our attention. The evidence tends to show, gentlemen, that if this product is produced as claimed here on the part of the defendant, that after production by this process that the product would be nearly white. As I say, if it contained all of the elements of lemon extract, I don't think he would be guilty under this law, and if you are so satisfied, of course, at that point it would be your duty to find a verdict of not guilty unless there is some other matter in which he has violated this law.

"There is another provision of this Pure Food Law that provides that ingredients shall not be colored. In this case it appears that after this fluid substance is produced which he claims is just the same as produced under this formula, that he desires to change it to a lemon color. In other words, he puts in an ingredient which he claims would produce the same effect as this lemon rind. What is the object, gentlemen, or what was the object of Mr. Jennings adding this color? If the object was by any means to make it appear better or of greater value than it really is; if that was the object in adding that product of course it is your duty without any question to find this defendant guilty, because he hadn't any right to add that kind of a product or any other kind of a product to this fluid which he had produced and sell it for lemon extract, because that is a direct violation of one of the provisions of this Pure Food Law."

We think this charge presents fairly three questions for consideration: First, whether the pharmacopoeia formula is to be considered as defining lemon extract; second, if so, whether an omission of ingredients not essential to its purposes as a food product is a violation of the statute; third, whether the instruction relative to the addition of coloring matter should be sustained.

The statute defining what shall be deemed adulteration, so far as it relates to this case, declares that an article shall be deemed adulterated when: "First, if any substance or substances have been mixed with it, so as to lower or depreciate or injuriously affect its quality, strength or purity; second, if any inferior or cheaper substance or substances have been substituted wholly or in part for it; third, if any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it; fourth, if it is in imitation of, or is sold under the name of another article; * * * sixth, if it is colored, coated, polished or powdered whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is; seventh, if it contains any added substance or ingredient which is poisonous or injurious to health." Compiled Laws, Sec. 5012.

We are agreed with the circuit judge that in referring to articles of food and to protect the users thereof the legislature must have had in view some standard, and as lemon essence or lemon extract had therefore acquired a well-defined meaning we incline to the view that it is proper to resort to the pharmacopoeia formula for the purpose of determining what lemon extract consists of. Does it follow from this that the legislature intended to prohibit improvement in the manufacture of lemon extract? If a means should be discovered by which a larger percentage of the flavoring quantity of the lemon might be extracted would it be an infraction of this law that the manufacturer should use

such larger proportion of the essential ingredient of the lemon extract? We think not. We think it is open to manufacturers to improve a common article of food so long as no infringement of the law or spirit of the act defining what shall be deemed adulteration takes place. According to the proofs offered by the defendant it is very clear in the present case no substance or substances have been mixed with this extract so as to lower or depreciate or injuriously affect its quality, strength or purity.

As to the second condition which amounts to adulteration the case is not so clear. This provides that if any inferior or cheaper substance or substances have been substituted wholly or in part for it, that it shall amount to adulteration. We think, however, this provision should be read in connection with the succeeding one, to-wit: "If any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it." So construed the provision prohibiting the substitution of any inferior or cheaper substance, wholly or in part, for it means the substitution for an essential ingredient of such cheaper or inferior substance. Now if it be a fact, as the testimony on the part of the respondent tends to show, that it is a positive advantage to exclude the turpene wholly from the extract and to lessen the quantity of alcohol used, then the essential ingredients of lemon extract have not had substituted for them anything inferior or cheaper. We are aware that this view of the law may make it more difficult to establish the individual case, but as the statute is a penal statute it should receive a strict construction.

It follows from the views above expressed that the instruction of the learned circuit judge was erroneous inasmuch as the jury were told in effect that if *any* ingredient of lemon essence as defined by the pharmacopoeia was wanting in this extract sold by the respondent that there should be a conviction. We think the instruction should have been that if the lemon extract sold by respondent contained all the ingredients and in quantities such as prescribed by the pharmacopoeia which are adapted to use as food, and that nothing was eliminated except such ingredients as could be dispensed with without injury to the product as a food product there was no violation of the statute.

The only other provision of the statute involved is the sixth, which in effect prohibits coloring the articles produced whereby damage or inferiority is concealed. The instruction upon this branch of the law was also erroneous if we are correct in our view of the main question. The elimination of non-essential ingredients from the extract certainly does not show damage or inferiority, and as the conceded facts are that the coloring matter employed was not injurious to health in any way this provision has no application.

The other questions discussed do not require special mention. It may be noted in passing that the circuit judge in referring to the testimony of expert witnesses spoke of it as boughten testimony. We think this expression was unfortunate. While it is proper for the jury to take into account the fact that expert witnesses are employed at an extra compensation paid them, the implication that the extra compensation necessarily amounts to a purchase of their testimony is hardly warranted; while the jury may consider this fact as bearing on their credi-

bility, it is not proper that the court should intimate an opinion of that character.

The judgment should be reversed, and a new trial ordered.

The other justices concurred.

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BENNETT v. CARR.

(Opinion filed July 14, 1903.)

Pure Food Law, Act 22, P. A., 1901, Construed—Sale of Yellow Oleomargarine.

Act No. 22 of the Public Acts of 1901 prohibiting the sale of oleomargarine except where it is "free from coloration or ingredient that causes it to look like butter," does not prohibit the sale of oleomargarine whose color is natural, genuine, and not an imitation, and the ingredients themselves naturally produce the color.

The term "ingredient," used in Act 22, Public Acts of 1901, does not refer to the ingredients essential to produce the article as defined by the legislature, but to an ingredient used to *produce* color.

Certiorari to the Circuit Court for Muskegon county, Fred J. Russell, judge, to review an order denying the petition of John R. Bennett for mandamus to compel John M. Carr to issue a *warrant*. Order affirmed.

Charles A. Blair, Attorney General, and Cross, Lovelace and Ross, for relator and appellant.

Smith, Nims, Hoyt and Erwin for defendant and appellee.

Grant, J.: Relator is the inspector of the State Food and Dairy Department. On the 24th day of February, 1903, he made complaint before the defendant, a justice of the peace of the county of Muskegon, charging one Martin Aamondt with having sold one pound of oleomargarine contrary to Act No. 22 of the Public Acts of 1901. The respondent refused to entertain the complaint and issue warrant, on the ground that the complaint stated no offense under the provisions of said act, and that said act is unconstitutional and void. Relator thereupon applied to the circuit court for the county of Muskegon for the *writ of mandamus* to compel the respondent to issue said warrant, and proceed with the examination. The circuit court sustained the action of the respondent, and the case is now before us for review upon *certiorari*.

The statute in question reads as follows:

"Section 1. No person, by himself or his agents, or servants, shall render or manufacture, sell, offer for sale, expose for sale, or have in his possession with intent to sell, any article, product or compound made wholly or in part out of any fat, oil, or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, which shall be in imitation of yellow butter produced from pure unadulterated milk or cream of the same: Provided, That nothing in this act shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form, and in such manner as will advise the consumer of its real character, free from coloration or ingredient that causes it to look like butter." The complaint charges Mr. Aamondt with un-

lawfully selling one pound of oleomargarine "made wholly or in part of fat, oil or oleaginous substance or compound thereof, as follows, to wit:

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|---|---|
| Water | 11.75 per cent. |
| Butter fat | 1.34 per cent. |
| Beef fat, lard and cottonseed oil | 79.24 per cent. |
| Salt and other mineral matter | 4.54 per cent. |
| Curd | 3.13 per cent. |

Said article, product or compound not being then and there butter produced from unadulterated milk or cream from the same, and being then and there in imitation of yellow butter produced from unadulterated milk or cream from the same, and not being then and there oleomargarine in a separate and distinct form and in such manner as would advise the consumer of its real character, free from coloration or ingredient that would cause it to look like butter, but that the said oleomargarine was then and there of a yellow color in imitation of butter, said color not being then and there produced by the addition of any artificial coloring matter, but said color being produced solely by the said ingredients therein contained, the said ingredients hereinbefore set forth having been selected and used in the manufacture of said oleomargarine in such manner and in such quantities and proportion as to produce the oleomargarine that was then and there in imitation of yellow butter produced from unadulterated milk or cream from the same, contrary to the form of the statute," etc.

The oleomargarine so purchased was manufactured in the city of Chicago, State of Illinois, by one Moxley, a resident of said city, and was sold by said Moxley to said Aamondt in the usual course of trade, and by said Aamondt was sold in the usual course of retail trade, in the same form and condition, and in the original package, in which it was received by Aamondt from Moxley.

It is conceded that this oleomargarine has a yellow color similar to butter, but the color is not produced by any artificial coloring substance or ingredient used for the purpose of coloration, but is produced solely by the selection and use, in proper proportions, of the substantial, recorganized, legal and necessary ingredients of commercial oleomargarine.

Does the complaint state an offense covered by the statute? The answer depends upon the construction to be given to the statute. The relator contends that the statute covers all products which look like yellow butter, and that it is immaterial whether such color is produced by some ingredient introduced for the purpose of causing the product to look like butter, or whether such color is produced by authorized and legal constituent food ingredients. The respondent contends that the statute is aimed only at the use of ingredients used solely for the purpose of producing the yellow color, and does not prevent the manufacture of an article whose color is natural, genuine and not an imitation. Penal statutes must be construed strictly and cannot be extended by construction beyond the intent of the act as expressed on its face. The conditions existing at the time the statute was enacted, and the mischief to be remedied, are important factors in construing penal statutes. Two acts covering the same subject must be construed as *in pari materia*, and, if possible, effect given to both. These are elementary rules of construction. At the time the statute in question was enacted the only

method in use in causing oleomargarine to look like yellow butter was the introduction of some extraneous coloring matter. This was the mischief to be remedied. We clearly so understood in People v. Rotter, 9 D. L. N, 284; 91 N. W. Rep. 167, where, speaking through Chief Justice Hooker, we said of this statute: "The statute under consideration * * * does not prohibit sales of oleomargarine which is not tainted with the prohibited ingredient."

See also People v. Phillips, 9 Id. 393; 91 N. W. Rep. 616.

The legislature has defined oleomargarine which may be manufactured and sold in this State. Sec. 6, Act No. 147, Public Acts of 1899. It is conceded that the respondent has complied with this act. If we give the enlarged construction to the statute now in question, as urged by the relator, it follows that the legislature has prohibited the manufacture and sale of a valuable article of food, the natural color of which resembles yellow butter (itself almost universally colored by extraneous matter). The manufacturer of such a product, if he sold it at all, would be compelled to introduce some coloring matter so as to make it look unlike the yellow butter of commerce. These two statutes must be construed together. The article sold by the respondent is clearly authorized by the first act. The latter act does not in terms prohibit its sale and manufacture. It does prohibit the use of any substance for the sole purpose of producing yellow color. The use of such coloring matter was the sole mischief then known to exist, and the only danger to be apprehended and guarded against.

A similar statute was passed in New Jersey, and the like contention was made to support a conviction, and the court said: "To construe the statute so broadly would render it practically prohibitive of the sale of all oleomargarine; for, of course, the compound must derive color from its ingredients, and such a prohibition has manifestly not been declared."

Ammon v. Newton, 14 At. Rep. 610; 50 N. J. 548.
McCan v. Commonwealth, 48 At. Rep. 470; 198 P. A. St. 509.

Our statute is copied verbatim from that of Massachusetts. The Supreme Court of that State, in a case just decided, has held that the statute applies only to extraneous substances or ingredients which cause the product to look like butter, and not to cases where the ingredients themselves naturally produce the color.

Commonwealth v. Himberg, —— ——.

The Supreme Court of the United States so held in regard to the same statute.

Plumley v. Commonwealth, 155 U. S. 461.

The term "ingredient," used in the statute, does not refer to the ingredients essential to produce the article as defined by the legislature, but to an ingredient used to produce color. The maxim *noscitur a sociis* applies.

Under this disposition of the case it becomes unnecessary to discuss any constitutional question.

The order is affirmed.

The other justices concurred.

## PEOPLE v. HARRIS.

(Opinion filed December 1, 1903.)

Food—Corn Syrups—Glucose.

1. Public Acts 1903, No. 123 forbids the sale of cane syrup or beet syrup mixed with glucose, unless the package containing the same be distinctly branded "Glucose Mixture" or "Corn Syrup," with the name and percentage of each ingredient contained therein plainly stamped thereon. *Held*, That a sale of syrup made of 90 per cent pure corn syrup and 10 per cent cane syrup, labeled "Victor Corn Syrup," and truthfully stating the ingredients composing it, is not in violation of the statute, in that it is not branded "Glucose, 90 per cent, and cane syrup 10 per cent."

Exceptions from circuit court, Kent county; Willis B. Perkins, Judge.

Benjamin S. Harris was convicted of violating the "Act in relation to the sale of corn syrup" and brings exceptions. Reversed.

Respondent was prosecuted and convicted for a violation of Act No. 123 of the Public Acts of 1903, entitled "An act in relation to the sale of corn syrup," and reading as follows:

"Sec. 1. No person shall offer or expose for sale, have in his possession with intent to sell, any cane syrup, beet syrup, or glucose, unless the barrel, cask, keg, can, pail or package containing the same be distinctly branded or labeled with the true and appropriate name; nor shall any person offer or expose for sale, have in his possession with intent to sell, or sell any cane syrup or beet syrup mixed with glucose unless the barrel, cask, keg, can, pail or package containing the same be distinctly branded or labeled 'Glucose Mixture' or 'Corn Syrup' in plain Gothic type not less than three-eighths of an inch square with the name and percentage by weight of each ingredient contained therein plainly stamped, branded or stenciled on each package in plain Gothic letters not less than one-quarter of an inch square. Each and every package of syrup either simple or mixed shall bear the name and address of the manufacturer. Such mixtures or syrups shall have no other designation or brand than herein required that represents or is the name of any article which contains a saccharine substance; and all brands or labels required shall be an inseparable part of the general or distinguishing label, and that the general or distinguishing label shall be that principal and conspicuous sign under which it is sold.

"Sec. 2. Whoever shall do any of the acts or things prohibited, or neglect or refuse to do any of the acts or things required by this act or in any way violate any of the provisions, shall be deemed guilty of a misdemeanor, and shall be punished by a fine not less than twenty-five dollars nor more than one hundred dollars, or by imprisonment in the county jail for a period of not less than thirty nor more than ninety days, or by both such fine and imprisonment in the discretion of the court."

The complaint charges him with the unlawful sale of a "two-pound can, two pounds, of a certain article, product and compound, to-wit: corn syrup, so-called, made wholly or in part of cane syrup and glucose as follows, to-wit: Cane syrup ten per cent, and glucose ninety per cent, said can containing said article, product and compound sold as aforesaid not being then and there stamped, branded or stenciled with the name and percentage by weight of each ingredient contained therein, to-wit: cane syrup ten per cent, glucose ninety per cent; but said article, product and compound sold as aforesaid was then and there

stamped and branded as follows, to-wit: "Cane syrup ten per cent, corn syrup ninety per cent,' against the form of the statute in such case made and provided, and against the peace and dignity of the people of the State of Michigan."

Respondent moved to quash the complaint and warrant for two reasons: (1) they charged no offense; (2) the act authorizes the use of the words "Corn Syrup," instead of Glucose in the statement of the ingredients placed upon the can. The motion was overruled and the case proceeded to trial upon the following agreed facts:

1. The respondent sold on October 12, 1903, at the city of Grand Rapids, Michigan, the can of Victor Corn Syrup in question.

2. The label on said can of syrup sold, as stated in the complaint, contains the formula of contents of said can as follows: "Corn Syrup, ninety per cent; cane syrup, ten per cent;" and is not branded or labeled as the people claim it should be, "Glucose, ninety per cent; Cane Syrup, ten per cent."

3. The Victor Corn Syrup in question is in fact composed of ninety per cent syrup made from corn, commercially called Glucose or Corn Syrup, and ten per cent of cane syrup.

4. Glucose contained in the Victor Corn Syrup in question is in fact a pure syrup made entirely from corn.

5. Grape Sugar, commercially known as Glucose, either solid or liquid, is a generic name for starch sugar as distinguished from the cane sugar.

6. A simple beet syrup is evidently the same as the simple cane syrup.

7. Originally, Glucose, which was first made from grapes, was, for the reason that starch sugars are identical with the sweet principle of grapes, termed, for a great many years, and until lately was known chemically and commercially as Grape Sugar.

8. Commercially, Glucose is now made in this country entirely from corn, although abroad it is still made from potatoes.

9. The consuming public does not understand that Glucose is a syrup made entirely from corn. On the contrary, it is claimed by the respondent that the public generally supposes Glucose to be an inferior product made from animal fat, or a product of the glue factory, while they do recognize corn syrup as being made from corn.

10. Glucose as made from corn and contained in Victor Corn Syrup in question, is entirely harmless and recognized generally by highest authorities as a valuable food product.

11. Glucose made from corn, in fact, costs, at the present time, owing partially to cost of raw material, more to produce, and sells for more in the markets, than manufactured cane syrup.

The court directed a verdict of guilty.

*Grant, J.* Does the statute require respondent or manufacturers to state upon their labels that corn syrup consists of ninety per cent glucose? No such statute has come under the decision of other courts. It is a new question, and must be determined upon general principles of construction.

It is conceded that the label states the exact facts; that the article is made of ninety per cent pure corn syrup and ten per cent cane syrup;

that it deceives no one; that Victor Corn Syrup is a valuable and pure article of food, and that the ingredients ninety per cent corn syrup "is entirely harmless, and recognized generally by the highest authority as a valuable food product," whether it be called glucose or corn syrup. The term "Glucose" is obnoxious to many, if not a majority, of the public, and is misunderstood by them. They do not know that in this country glucose is now made entirely from corn, and that the terms glucose and corn syrup are commercially synonymous. This fact is known to the manufacturers and perhaps the dealers. A prejudice exists against the term "glucose" because that material can be manufactured from many substances, including sawdust. In Europe it is made mainly of potatoes. By many it is associated with a glue factory. In this country corn syrup and glucose are not only commercially synonymous terms, but it is stated by counsel for respondent that they are permitted to be so used in all the other states. We have not verified this statement, but as it is not challenged we assume it to be correct.

We have, therefore, a valuable and healthful product, made from two pure, valuable and healthful ingredients, advertised and placed upon the markets for what it really is, without any deception, fraud or chance to injure the public in any way. Yet the contention on behalf of the people is that the legislature has enacted that in putting this product upon the market its manufacturers and sellers must attach to it a name obnoxious to the public, and, in fact, calculated to deceive them. When it is claimed that such innocent acts are made *malum prohibitum*, there must be either an express provision of the statute so declaring, or the language of the statute must leave no other conclusion reasonable. This statute does not expressly require it.

The argument on behalf of the people is "that glucose made from corn is glucose, the simple syrup mentioned in and intended to be mentioned in said act." The further claim is "that had there been any intention on the part of the legislature to use the terms 'glucose' and 'corn syrup' interchangeably and as synonymous then the term 'corn syrup' would have been enumerated as one of the simple syrups." We do not think this reasoning at all conclusive. Prior to the enactment of this statute the law prohibited the sale of molasses, syrup or glucose unless distinctly branded or labeled with its true and appropriate name,—or any mixture thereof, unless it was branded or labeled "glucose mixture," and the per cent in which glucose entered into its composition. C. L., sec. 5024. The present act which repeals the provisions of the former act expressly permits the mixture to be labeled "glucose mixture," or "corn syrup," and forbids mixtures or syrups to have any other designation than required in the act so far as such designation "represents or is the name of any article which contains saccharine substance." It is a fair presumption that the legislature, in enacting this law, recognized the obnoxious character of the term "glucose" among the people, and permitted, and intended to permit, a mixture of corn syrup and cane syrup to be sold under the name of 'Corn Syrup. The title to the act provides for the sale of corn syrup, and in its body provides that when cane syrup is mixed with it, the manufacturers and dealers shall state the proportionate ingredients. The smaller amount of cane syrup used does not change the character of the general product, any more than salt changes the character of bread, or, sugar that of cake,

and the act permits the sale of the mixture as corn syrup. Syrup, as defined by the United States Department of Agriculture, "is the product obtained by purifying and evaporating the juice of a sugar producing plant without removing any of the sugar." Syrup thus obtained from cane is cane syrup; syrup so obtained from sorghum is sorghum syrup, and syrup so obtained from corn is corn syrup. There is no reason why corn syrup should be labeled glucose, and until the legislature have so ordered in language susceptible of no other construction, the law must be held not to bear that construction.

Conviction reversed, and respondent discharged.

Hooker, C. J., took no part in the decision. The other justices concurred.

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## PEOPLE v. HINSHAW.

(Opinion filed January 5, 1904.)

Pure Food Law—Adulterated with Harmless Ingredients—Act 193, P. A. 1895, Construed.

The coloration of "Extract of Vanilla" with any substance to give it the appearance of greater strength is a violation of the pure food law, even though such coloring matter is harmless.

Act 193, P. A. 1895, as amended by Act 118 P. A. 1897, held constitutional.

Error to the circuit court for Saginaw county; B. A. Snow, judge.

Appeal of Emory H. Hinshaw from a conviction under the pure food law. Affirmed.

Charles A. Blair, Attorney General, and Frank A. Rockwith, Jr., and C. M. Browne, for the people.

Eugene Wilber for respondent and appellant.

Respondent was prosecuted and convicted of the unlawful sale of "Extract of Vanilla, which was then and there adulterated within the meaning of act number 193 of the Public Acts of the State of Michigan of the year 1895, as amended by act number 118 of the Public Acts of 1897, in this, to wit: That said Extract of Vanilla was colored by the addition of a foreign coloring matter, to wit: coal tar dye, whereby its inferiority was concealed, and whereby said Extract of Vanilla was made to appear better and of greater value than it really was."

Two errors are assigned.—(1) that the court erred in instructing the jury; (2) that the act is unconstitutional as repugnant to the Fourteenth Amendment of the Constitution of the United States.

Grant, J.: I. The instruction complained of is as follows:

"Now before the inferiority of an article can be concealed it must be necessarily first ascertained as to whether or not there is an inferiority in the article.

If it is an inferior article and that inferiority is concealed by reason of the addition of foreign substance in this vanilla, and you are satisfied from the proof beyond a reasonable doubt of the fact, then he would be guilty, although he had no knowledge as to the foreign substance being in the bottle."

It appears that no such claim was made on behalf of respondent upon the trial; no request was asked covering the points now raised. The only objections shown by the record to have been made are,—*first*, that the title is not broad enough to cover the provisions in the amendment of 1897; *second*, that the legislature has no power to prohibit and punish acts in themselves harmless; *third*, that the act is unconstitutional. Even in criminal cases it is the duty of counsel to call the attention of the court to the points on which an instruction is desired. People v. Ezzo, 104 Mich. 311.

We, however, are of the opinion that the information charges the coloration to make an inferior article appear better and more valuable than it really was, and is sufficient; and also that there was evidence to sustain the allegation. The State Chemist testified that the effect of the coal tar dye was to make the article appear of greater value than it really is, and that the people would think it stronger than it really was. It is true, his testimony was weakened by cross-examination, but not sufficient to take the question from the jury,—especially in view of the fact that no other purpose than to make the article appear better, is shown.

II. The use of coal tar dye being harmless, counsel for respondent insists that the case comes within the rule of the recent case of People v. Jennings, 94 N. W. R. 216; 10 D. L. N. 39. That case had not been decided when this case was tried. No such theory was advanced upon the trial. Even if it were, we, however, think the case is clearly distinguishable from People v. Jennings. The color given to lemon extract, which of itself is almost colorless, is no indication whatever of the strength of the extract or its value. Its color is a mere whim or caprice of the trade, and no more indicates the character and value of the extract than does the coloring matter, used to color butter, indicate its character and value. In this case Vanilla resembles the color of the bean from which it is produced. Its strength and value are judged to some extent at least, under the evidence in this case, from its color. No other object is apparent from the use of the coloring than to make it appear of a quality better than it really is.

III. It is urged that the act is unconstitutional on account of the proviso "that nothing in this act shall prevent the coloring of pure butter." This act is similar in its provisions to that involved in People v. Rotter, 91 N. W. R. 167; and People v. Phillips, Id. 616. The constitutionality of such acts was there sustained, and a discussion is unnecessary. Capital City Dairy Co. v. Ohio, 183 U. S. 238, 246, is decisive of the question.

The conviction is affirmed.

The other justices concurred.

The Pratt Food Company,
v.
Arthur C. Bird, Dairy and Food
Commissioner of the State of Michigan.

Montgomery, J.:

The bill in this case is filed to restrain the defendant, his clerks and employes, from writing, printing issuing, publishing or sending out any bulletin, writing, publication or notice, to the effect that complainant's preparations sold as Pratt's Food for Horses and Cattle, Pratt's Poultry Food, and Pratt's Animal Regulator, or either of them, are not licensed under Act No. 12 of the Laws of 1905, and warning the public against buying or selling these preparations.

The bill sets out that the defendant asserts and claims that these preparations come within the terms of the act, and that unless restrained by injunction he will so assert by bulletins issued to the trade, and by this method intimidate dealers and prevent their purchasing complainant's products. (We are stating simply the substance of the averments in brief.) It is also asserted that the effect of such bulletins will be to destroy and ruin the complainant's trade and work irreparable injury.

Upon the hearing below the bill was dismissed, and the complainant appeals. Three questions are presented upon the record, first whether in view of the case complainant is entitled to the remedy here invoked; second, whether Act No. 12 of the Public Acts of 1905 is constitutional; third, whether if it be constitutional the complainant's products come within the terms of the statute.

1. The statute in question is an amendment of Act No. 211 of the Public Acts of 1893, entitled "An act to provide for the appointment of a Dairy and Food Commissioner, and to define his powers and duties and fix his compensation," and by section 18 of the act it is provided that "Any manufacturer, company, person or persons who shall sell, offer or expose for sale or for distribution, in this State, any concentrated commercial feeding stuff used for feeding live stock, shall furnish with each car, or other amounts shipped in bulk, and shall affix to every package of such feeding stuff, in a conspicuous place on the outside thereof, a plainly printed statement, clearly and truly certifying the number net pounds in the car or package sold or offered for sale, the name or trademark under which the article is sold, the name of the manufacturer or shipper, the place of manufacture, the place of business, and a chemical analysis, stating the percentages it contains of crude protein, crude fibre, nitrogen—free extract and ether extract, all constituents to be determined by the methods adopted by the association of official agricultural chemists. Whenever any feeding stuff is sold at retail, in bulk or in packages belonging to the purchaser, the agent or dealer shall furnish to him a certified copy of the chemical analysis named in this section. The term concentrated commercial feeding stuffs as used in this act shall include linseed meal, cotton seed meal, pea meals, cocoanut meals, gluten meals, oil meals of all kinds, gluten feeds, maize feed, starch feeds, mixed sugar feeds, hominy feeds, rice meals, oat feeds, corn and oat feeds, meat meals, dried blood, clover meals, mixed feeds of all kinds, slaughter house waste products; also all condimental stock foods, patented and

proprietary stock foods, claimed to possess nutritive proprieties and all other materials intended for feeding to domestic animals. * * *" A penalty is provided for the violation of this provision.

It is strenuously insisted by the Attorney General that if it be conceded that the complainant's products do not come within the inhibition of this statute, yet no remedy by injunction exists, for the reason that the effect of issuing an injunction is to restrain the prosecution of a criminal proceeding. Numerous cases are cited, among them Arbuckle v. Blackburn, 113 Fed. Rep. 625; State v. Wood, 155 Mo. 425, and Predigested Food Co. v. McNeal, 1 Oh. N. P. 266.

In so far as these cases lay down the rule that a court of equity will not interfere to restrain a public officer from invoking the criminal law and instituting a prosecution for a violation of a statute they have our full approval. A court of equity will not transfer to its own jurisdiction the trial of a criminal case, and this though the prosecution may fall with some hardship upon the accused party. Nor, as a general proposition, will a court interfere to restrain the publication of a libel.

But we hold in Beck v. Railway Teamsters' Protective Union, 118 Mich. 497, that injunction will lie to restrain a combination of persons from acts which tend to ruin complainant's business by bringing to bear upon his customers intimidating and coercive means. The principle which should rule the present case is identical. If the acts which are threatened are unlawful it cannot be doubted that placing in the hands of every dealer in the State a bulletin which in effect threatens them with prosecution in case they make use of these products in the form in which they are lawfully sold to them would be to absolutely exclude complainant's business from the State. The case presented is very similar in this aspect to that of American School of Magnetic Healing v. McAnnulty, 187 U. S. 94, which case involved the right of the Postmaster General to exclude the complainants from the use of the United States mails. An order had been made excluding complainants from the use of the mails. The court interfered and held that such order was a violation of the property rights of the persons affected and granted relief.

2. Is the law constitutional?

It is claimed that the law is unconstitutional in that it violates Section 20 of Article IV of the constitution, which provides that no law shall embrace more than one object, which shall be expressed in its title.

It is established by our decisions that if what is introduced by way of an amendment to an act might have been incorporated in the act under the original title there is no violation of this section. People v. Gadway, 61 Mich. 285; Attorney General v. Bolger, 128 Mich. 355.

The question is therefore whether under the original title a provision fixing a standard of pure food and providing means to prevent deception in the sale of such food is within the title of an act to provide for the appointment of a Dairy and Food Commissioner and to define his powers and duties and fix his compensation. We think the title is within our previous decisions sufficient. It is obvious to one reading this title that there must have been imposed upon the commissioner certain powers and duties to make his Department of any value to the State, and furthermore that these powers and duties must have relation to some-

thing. It is equally obvious that the relation of these powers and duties must be to the subject which is brought within the Department that is created, viz., the Dairy and Food Department.

The title is very similar to that which established the Insurance Bureau. In Connecticut Mutual Life Ins. Co. v. State Treasurer, 31 Mich. 6, it was held that a title which read "An act to establish an Insurance Bureau" was sufficiently broad to cover any pertinent regulations respecting the bureau's course of action towards those engaged in insurance, and any appropriate provisions for prescribing the duty due from the insurance companies to the State in the matter of taxation, without violating the constitutional provision.

3. The question of more difficulty is the question of fact as to whether the preparations of complainant are concentrated commercial feeding stuffs as defined by the act cited above.

It is true the testimony shows that upon each of the labels which accompanied Pratt's Food for Horses and Cattle was the statement: "Pratt's Food is a regulator, to be used according to directions, and is not sold as a feeding stuff, nor is it to be fed in place of grain or any other feed." But in addition to claiming medicinal properties for the food it was also stated how it should be used to fatten and improve stock. It was stated that "It fattens both cattle and hogs quickly, makes them grow larger and healthier and makes their meat tender, more juicy and better eating." It also stated that for horses it "produces bone, muscle and better staying powers; improves the wind."

When this statute was enacted commercial feeding stuffs were on the market and this fact must have been known to the Legislature.

In employing the broad language "All condimental stock foods, patented and proprietary stock foods, claimed to possess nutritive properties and all other materials intended to cover all preparations for which the claim of nutritive qualities was made." Complainant's preparations come within this language.

Similar representations were made in the labels of other preparations.

We are of the opinion that the Circuit Judge was right in holding that all these preparations were within the statute.

The decree is affirmed with costs.

Pierre Viaus Maple Company, Complainant, v. Arthur C. Bird, Dairy and Food Commissioner, and Joseph Schnitzer, Inspector of the Dairy and Food Department, Defendants. Before Grant, C. J., Blair, Montgomery, Ostrander and Hooker, J. J.

Complainant is the manufacturer of a brand of syrup known as the "Pierre Viaus Pure Canadian Maple Syrup and Cane Syrup," the trademark being the letters P. V. The bill alleges that the Canadian Pure Maple Syrup exceeds the amount of Cane Syrup. It sets forth efforts made with the Pure Food Commission to agree upon a label which shall comply with the law, the failure of these negotiations, the representations, made to the trade by the defendants that the sale of this syrup is illegal, and the injurious effect upon the complainant's business, and prays that the defendants be restrained from in any manner interfering with its business. To this bill of complaint the defendants demurred upon the ground that the syrups mentioned in said bill of complaint are not labeled as required by the laws of this State. The demurrer was overruled and the defendants have appealed.

Grant, C. J.

It is urged by the Attorney General that the sale of this mixture is in violation of section 5007 of the Compiled Laws, reading as follows:

"That it shall be unlawful for any person, dealer, firm, manufacturer or corporation to manufacture and sell, or offer for sale, any maple sugar, maple molasses or maple syrup that is in anywise adulterated with common sugar, beet sugar, glucose or any other foreign substance without distinctly marking, stamping or labeling the articles or the package containing the same with the true and appropriate name of such article and the percentage in which common sugar, beet sugar, glucose or any other foreign substance enters into the composition of the same."

It is urged by the complainant that the case falls within Act 193, Public Acts of 1895, known as the Pure Food Law, and entitled, "An act to prohibit and prevent adulteration, fraud and deception in the manufacture and sale of articles of food and drink."

Sec. 1 (C. L. 5010) of the act prohibits the sale or having in possession with intent to sell any article of food which is adulterated within the meaning of the act.

Sec. 2 (C. L. 5011) defines the term "food" to include all articles used for food or drink.

Sec. 3 (C. L. 5012) states what articles shall be deemed to be adulterated. The section closes with the following proviso:

"Provided further, That the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food, if each and every package sold or offered for sale bear the name and address of the manufacturer and be distinctly labeled under its own distinctive name, and in a manner so as to plainly and correctly show that it is a mixture or compound, and is not in violation with definitions fourth and seventh of this section."

The court held that this syrup came within the Pure Food Law (Act 193), and not under the act prohibiting the adulteration of maple sugar, etc., and that it came within the proviso above quoted.

We think the court was in error. The act in regard to the manufacture and sale of maple sugar is complete in itself, and covers the entire subject. It was intended to prohibit the manufacture and sale of maple sugar under any name without labeling the product with the true and appropriate name, stating thereon the percentage of any other ingredient used in its manufacture. The title of the act is "An act to prohibit the adulteration of maple sugar, maple molasses and maple syrup." The word " adulteration" in this statute means the mixture of any foreign substance, wholesome or unwholesome, with maple sugar. The evident purpose of the statute is to compel all persons manufacturing or selling maple sugar to inform the public not only of what the product is composed, but the proportions of each article used in the manufacture.

Decree reversed, and bill dismissed with costs of both courts.

## ABSTRACT OF LAWS.

The following is but a brief synopsis of the Dairy and Food Laws. The Digest and Rulings cover but a portion of the food and drink products affected by the statutes. Every article of food and drink comes within the law's regulation, and dealers are advised to examine the laws carefully and inform themselves fully.

### IN GENERAL.

No person shall within this State manufacture for sale, have in his possession with intent to sell, offer or expose for sale, or sell, any article of food or drink which is adulterated.

The taking of orders, or the making of agreements or contracts by any person, firm or corporation, or by any agent or representative thereof, for the future delivery of any of the articles, products, goods, wares or merchandise embraced within the provisions of this act is deemed a sale.

Under this statute a dealer is liable for selling an adulterated article, although he may have no knowledge that the same is adulterated.

A guarantee of purity received from the manufacturer or jobber does not relieve a person handling adulterated goods from liability.

### AN ARTICLE

shall be deemed to be adulterated:

1. If any substance or substances have been mixed with it, so as to lower or depreciate or injuriously affect its quality, strength or purity;
2. If any inferior or cheaper substance or substances have been substituted wholly or in part for it;
3. If any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it;
4. If it is an imitation of or is sold under the name of another article;
5. If it consists wholly or in part of a deceased, decomposed, putrid, infected, tainted or rotten animal or vegetable substance or article, whether manufactured or not, or, in the case of milk, if it is the product of a diseased animal;
6. If it is colored, coated, polished or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is, except in the case of pure butter which may be colored;
7. If it contains any added substance or ingredient which is poisonous or injurious to health.

### MIXTURE OF COMPOUNDS

recognized as ordinary articles or ingredients of articles of food may be sold under the following restrictions:

1. All packages containing same must bear the name and address of the manufacturer or compounder thereof;
2. They must contain nothing injurious to health;
3. They must not be sold in imitation of, or under the name of another article;
4. They must be distinctly labeled under their own distinctive name, and in a manner so as to plainly and correctly show they are a mixture or compound;
5. A mixture or compound cannot be sold under the name of any ingredient contained therein, even though the words mixture or compound be used in connection therewith. It must be sold under an original or coined name.

Exceptions under the law are:

Buckwheat flour, coffee and lard, which may be mixed with other substances under certain restrictions and sold as buckwheat flour compound, coffee compound, and lard compound.

## DAIRY LAWS.

### UNWHOLESOME MILK AND CREAM.

Whenever it is determined by the Dairy and Food Commissioner, his deputy or inspectors, that any person is using, selling or furnishing to any skimming station, creamery, cheese factory, condensed milk factory, milk depot, farm dairy, milk dealer, the retail trade, or to any consumer of milk, any impure or unwholesome milk or cream, caused by the unsanitary or filthy condition of the premises where cows are kept, or by the unsanitary or filthy care or handling of the cows, the use of unclean utensils, unwholesome food, or from any other cause, the person so offending shall be notified and warned by the Commissioner, his deputy, or inspectors not to use sell or furnish such milk or cream at any of the places, or to any of the persons above mentioned. A failure to obey such notice and warning and the continued sale of such milk is made a disdemeanor, punishable by fine or imprisonment or both.

### SANITARY CONDITION.

Whenever it is determined by the Dairy and Food Commissioner that unsanitary conditions exist in the operation of any skimming station, creamery, cheese factory, condensed milk factory, milk depot, or farm dairy, the proprietor or manager of the same, shall be notified and warned by the Commissioner, his deputy or inspectors, to place such skimming station, creamery, etc., in a sanitary condition. A failure to obey such notice and warning is made a misdemeanor, punishable by fine or imprisonment or both.

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